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AUGUST 16, 1924.

Vol. CI.

## MEGGESON & CO., LTD.



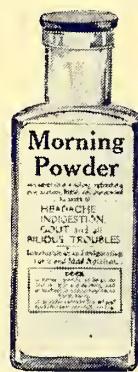
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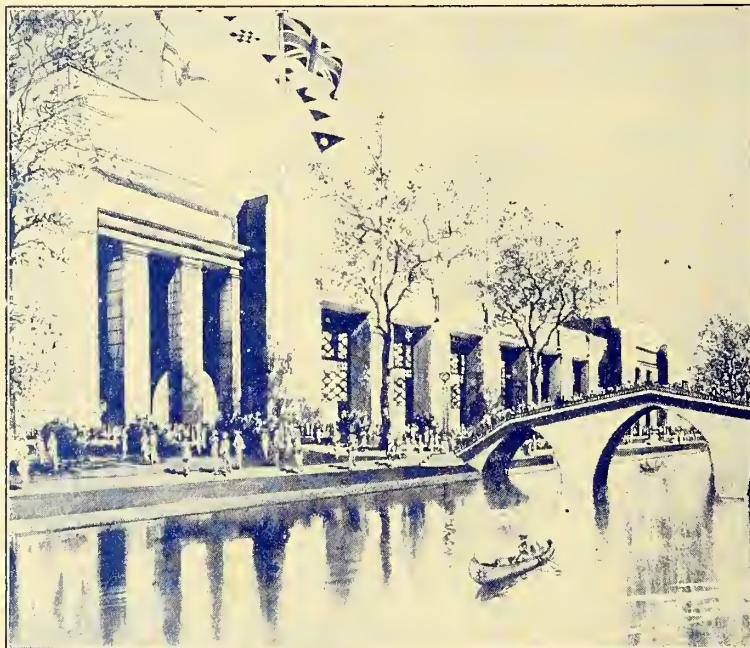
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In white enamel, ribbon orifice tubes, beautifully labelled, cartoned or in show outers of six as preferred. The base—of which glycerine forms a high percentage—is milled and remilled until it is literally as soft and even as cream.

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**ARTHUR H COX & CO LTD**  
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**BRIGHTON ENGLAND**



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,, Post. "		,, Crude
Suprarenal, W.G.		Lactated Pepsin
,, Cortex,,		etc., etc.



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# Three Popular Sellers that Pay for Prominent Display

## "Ovaltine" Tonic Food Beverage.

"OVALTINE" is a line that is never out of season. Its sterling worth as a daily nutrient for nourishing brain, nerves and body is now known in almost every home throughout the Kingdom. Our advertising is ever before the public eye in a highly attractive and dignified form. Take advantage of our bonus terms and a wide variety of high class advertising material is always at your service.

Your present turnover in "Ovaltine" is doubtless excellent. Think how it can be added to by these further good selling lines, which are purely additive business. Link up your window and your counter with our powerful publicity. The results will please you immensely.

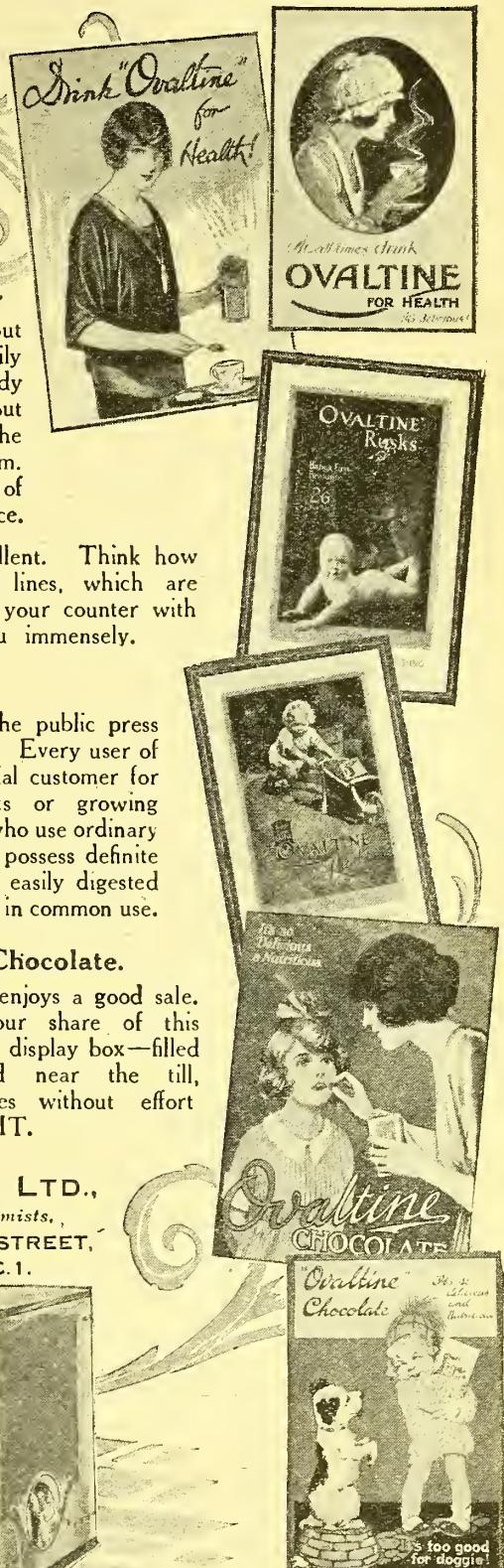
## "Ovaltine" Rusks.

"Ovaltine" Rusks are now extensively advertised in the public press and the present excellent demand is rapidly increasing. Every user of delicious "Ovaltine" Tonic Food Beverage is a potential customer for "Ovaltine" Rusks. Mothers with teething infants or growing children, invalids and the aged, in addition to all those who use ordinary rusks or biscuits. Remember that "Ovaltine" Rusks possess definite advantages, inasmuch as they are more palatable, more easily digested and much more nourishing than the usual rusk or biscuit in common use.

## "Ovaltine" Chocolate.

"Ovaltine" Chocolate enjoys a good sale. Are you receiving your share of this excellent business. A display box—filled with dummies—placed near the till, will make many sales without effort  
TRY IT.

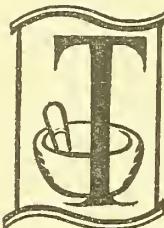
A. WANDER LTD.,  
Manufacturing Chemists,  
45, COWCROSS STREET,  
LONDON, E.C.1.



*A Word in Season from the Retail Pharmacists' Union*



## THE BUSINESS SIDE OF THE PHARMACY



THE pharmacist has to play a double role—the professional man and the business man. His professional training is all that it should be, but his business training hitherto has been gained by experience—sometimes bitter. With these facts before them and in response to many requests from members, the governing body of the Retail Pharmacists' Union has formulated a scheme by which every pharmacist in being and in embryo can gain quickly a knowledge of the BUSINESS side of the profession. This takes the form of a correspondence course entitled

### THE R.P.U. BUSINESS TRAINING COURSE

which covers the whole gamut of retail trading as applied especially to pharmacy. There are 5 sections: Advertising and Sales Letter-writing; Retail Selling and Shop Management; Window Dressing; Book-Keeping;

and Commercial Law. Each section has been contributed by an expert. There is nothing superfluous yet nothing is omitted which is likely to be of value to the pharmacist.

### Note: THE COURSE COMMENCES OCT. 1

and will cover a period of five months. It is significant that although details of the course were only announced a month ago there have been many enrolments from all parts of the country. All R.P.U. members are eligible, also assistants. Get to know more of this. WRITE AT ONCE to:

THE SECRETARY  
RETAIL PHARMACISTS' UNION, 19 Tavistock Square, London, W.C.

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*In sizes and shapes for all uses*  
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We hold complete Stocks of

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Please remember that ALL YOUR REQUIREMENTS  
may be obtained from

**JOHN THOMPSON (WHOLESALE DRUGGISTS 1921) LTD.**  
27-35 DUKE STREET, LIVERPOOL

Telegraphic Address:  
"DRUGS" LIVERPOOL

Telephone:  
1434 ROYAL (three lines)

# Sal Hepatica

## NEW PRICES TO PUBLIC

*Effective on September 9th, 1924*

Retailers are requested to note that on and after September 9th, 1924, the prices to the public for Sal Hepatica will be as follows:—

### P.A.T.A. PRICES TO CONSUMER

	NEW PRICES	PRESENT PRICES
Small size - - -	1/9 (21/- per doz.)	2/- (24/- per doz.)
Large size - - -	3/- (36/- , , )	4/- (48/- , , )

New prices to chemists became effective on August 1st (15/9 per doz. small size and 27/- per doz. large size). To enable the retailer to dispose of stock without loss, we are maintaining the present prices to the public until September 9th.

## BRISTOL-MYERS COMPANY

*Manufacturing Chemists*

112 Cheapside - - - LONDON, E.C.2

NEW YORK

SYDNEY

This preparation formerly known as "**OLIVENE**" is now registered under the Trade Marks Act as "**MOLIVENE**"

# "MOLIVENE"

(Regd. Trade Mark)

**Pure EXTRACT of MALT combined with finest quality OLIVE OIL**  
**SELLS ALL THE YEAR ROUND.**

Thousands of customers cannot take Malt and Cod Liver Oil during the summer months, but they *can* and *do* take "MOLIVENE."

Olive Oil is equal to Cod Liver Oil and has the advantage of being tasteless, having no smell and does not cause nausea as is often the case with Cod Liver Oil.

"MOLIVENE" is so palatable that even the most delicate stomach can take and digest it even in the hot summer months.

Recommend it to delicate women and children and you will ensure a grateful customer—and that is business.

*Sample and price mailed on application.*

**ROBERT BLACKIE**

Manufacturer and Sole Proprietor of the world famed "SPUN" Ointments,

Shen Works, Tower Bridge Road, London, S.E.1

Telephone: Hop 2415.

Telegrams: "Ushenspuna, London."

# PURE ORANGE WINE

**A. MILLAR & CO., LTD., DUBLIN**

(VINUM AURANTII B.P.)

Prepared in strict accordance with the Formula of the British Pharmacopoeia.

(Wholesale only)

Samples from Head Office, Thomas Street, DUBLIN or London Office, 74 Great Tower Street, LONDON, E.C. 3.

**BOTTLES.**

I solicit your enquiries for MEDICAL FLATS in all sizes, plain and graduated, MEXICANS, POISONS, KALIS, LIMES, VIALS, CANNONS, OVALS, BRILLIANTINES, in all shapes. SCREW JARS, TABLET BOTTLES, etc. etc. All bottles used in perfumery and chemist trades. Special shapes made.

Wholesale quantities only.

**VAN DER HOEKS, 321/23 Bank Chambers, 329 High Holborn, LONDON, W.C.1.**

**Quality Makers of**  
**Malt Ext. and**

All packings.

**Malt & Oil**

**C. Tolkien & Co.** Factory & Maltings — Apollo Works, Offices & Warehouse — Commercial Mills, **Blackburn.**

Established 1886.

BELFAST — 31 Antrim Road.

# WARNING!

**I**T has come to our notice that a quantity of "KOKO FOR THE HAIR" which was shipped to the Dutch East Indies four years ago is now being offered on the English market.

We would point out that this Koko has, owing to the tropical climate, doubtless deteriorated, and also that it is packed in export cartons which with the labels and literature are printed in the Dutch language. We shall endeavour to stop any shipments at the port of entry and to have the goods confiscated.

The same remarks apply to Koko which may be imported from Belgium, the cartons and labels in this case being printed in the French language.

**KOKO-MARICOPAS COMPANY, LTD.**  
16 BEVIS MARKS LONDON, E.C.3



**BAISS BROTHERS & Co. Ltd.**

Established 1833

GRANGE WORKS, LONDON, S.E.1

Wholesale and Export Druggists, Manufacturing Chemists and Druggists' Sundriesmen.

Telephone : Hop. 4362 (3 lines). Telegrams : "Ipecac, London."

**THIS IS YOUR OPPORTUNITY  
DON'T MISS IT!**

Fix your Contracts now for **SALINES, HEALTH SALTS, CARLSBAD** and all **EFFERVESCENT PREPARATIONS** to meet the **SEASON'S DEMANDS.**

*We are Specialists in these lines.*

LET US HAVE YOUR ENQUIRIES.

DELIVERIES BY OWN MOTOR SERVICE IN THE HOME COUNTIES, INCLUDING COAST TOWNS.

**IRVONA**

THE MOST POPULAR NERVE TONIC AND FLESH BUILDING TREATMENT.



A large and regular advertising campaign to support the sales of Irvona is guaranteed, and every chemist should carry stock and let the public know that he does so in order to share in the growing boom in this excellent product. Neat and attractive Show Cards, 11" x 4 1/2", sent on application.

The trade prices are :—

1/3 size "IRVONA,"	12/-	per doz.
5/-	48/-	
12/-	115/-	

The old sizes (3/- and 15/-) have been withdrawn, and any chemist still having stock of these should return them to me. They will be credited in full and exchanged for the new sizes.

IRVOLAX (the safe aperient) is also being asked for, and the prices are 1/3 size 12/- per dozen : 3/- size 29/- per dozen.

Obtainable through the usual wholesale houses, or direct against cash or usual trade references.

**P. J. WILLIAMS**  
27. Finsbury Street, LONDON, E.C.2

# Our Advertising Still Goes On

telling over four million people that:

To get the Pro-phy-lac-tic Tooth Brush, originated and made by the Florence Manufacturing Company, of Florence, Mass., U.S.A., since 1880, they must look for the hyphenated word Pro-phy-lac-tic stamped on the handle of each brush and printed in red on the **YELLOW BOX**

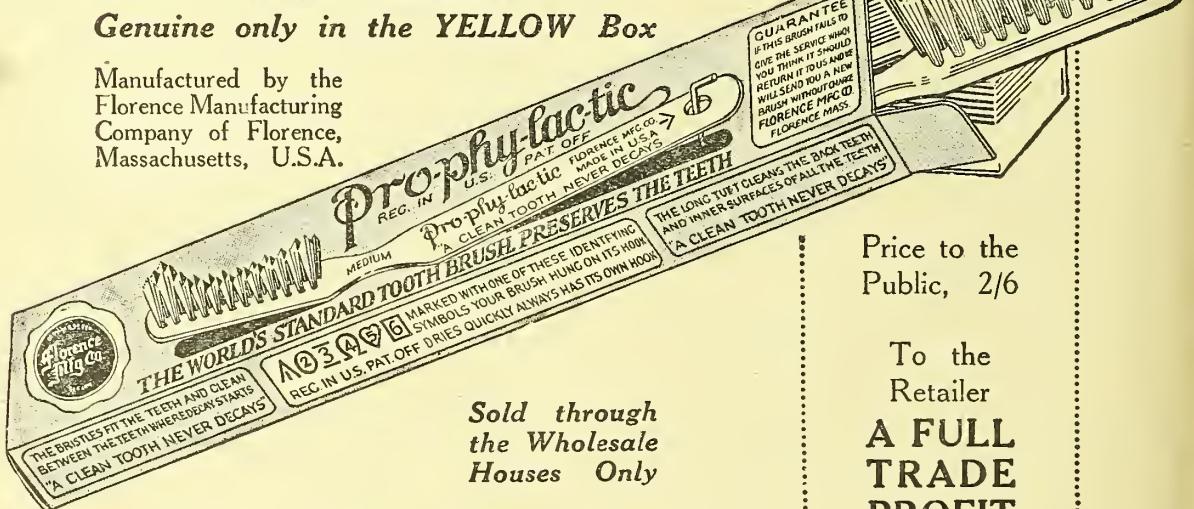
## YELLOW BOX

This widespread publicity is creating new customers for the Pro-phy-lac-tic Tooth Brush in the YELLOW Box—customers ready and able to buy “the only brush that really cleans the teeth.”

# Pro-phylac-tic Tooth Brush

**Genuine only in the YELLOW Box**

Manufactured by the  
Florence Manufacturing  
Company of Florence,  
Massachusetts, U.S.A.



*Sold through  
the Wholesale  
Houses Only*

**WILLIAM E. PECK & CO., Inc.**  
31 Bartholomew Close, London, E.C.1

Price to the  
Public. 2/6

To the  
Retailer  
**A FULL  
TRADE  
PROFIT**

# Maw's Page



## Parex

### The Pharmacists' Guaranteed Hot Water Bottle

Compare Parex Hot Water Bottles with others being sold at the same price and you will see the reason for their popularity. They are better bottles. The rubber is of the finest quality—the re-inforced seams make the bottle strong and durable—the patent washerless stopper prevents leakage and simplifies filling, and the guarantee for two years is conclusive evidence of general quality.

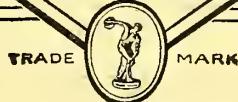
The reputation of the Parex Hot Water Bottle is built upon the sound quality and the excellence of its service, and it is the pharmacist who reaps the benefit.

Apart from the good looks and the guarantee of the Parex Hot Water Bottle there are other selling helps. The advertising and display matter supplied with the bottles is of the most original and striking design. The show card illustrated is very arresting, the reproduction cannot possibly convey any idea of the vivid and artistic original. We also supply a window screen and leaflets for counter distribution, both of which are strong selling helps for Parex Hot Water Bottles.



*The Parex Hot Water Bottle should be a feature of your window displays. It is the better bottle, it is well supplied with display matter, and it is the pharmacists' own.*

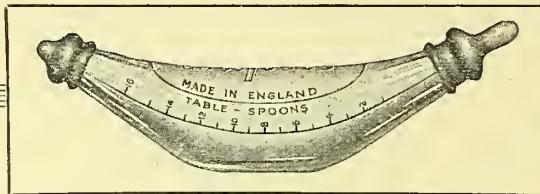
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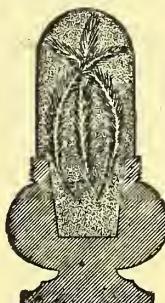
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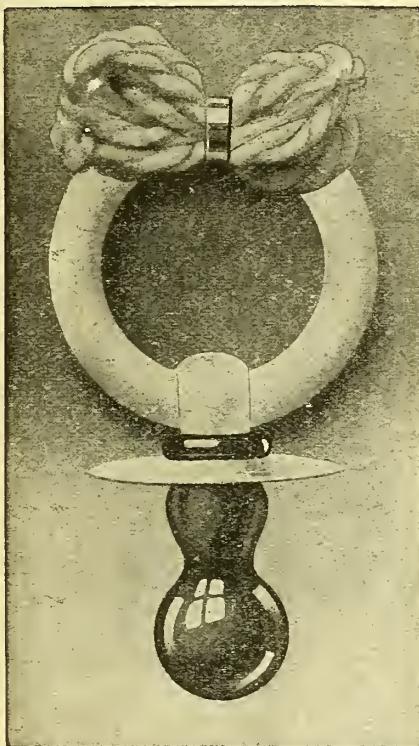
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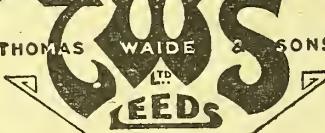
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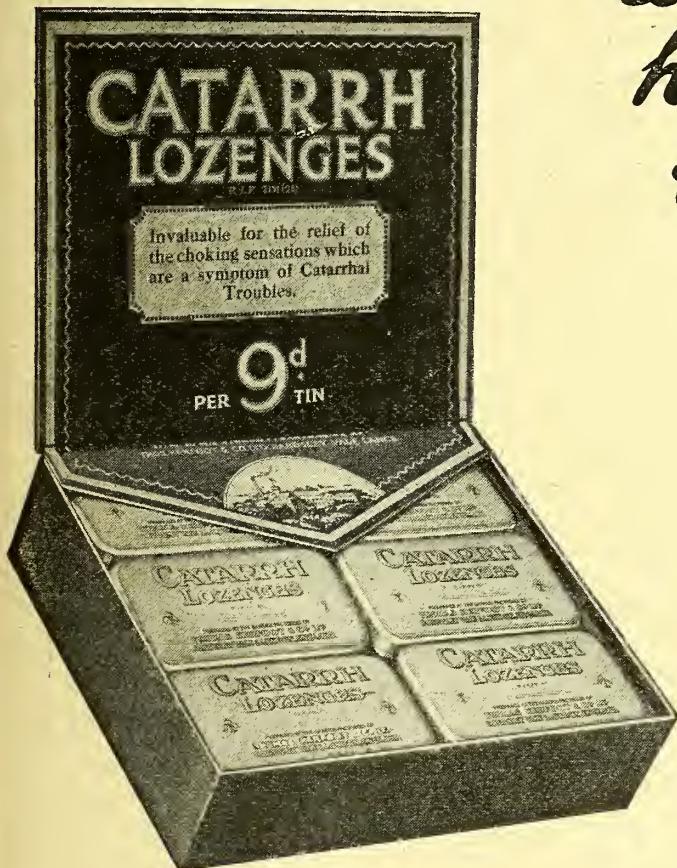
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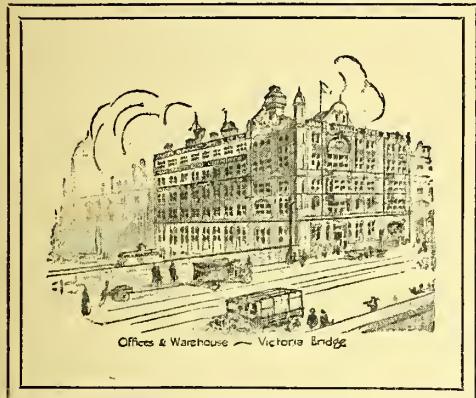
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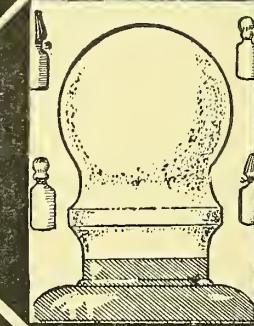
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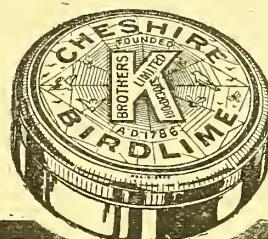
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## "BORONIA" PERFUME

DEEP in the forests of Western Australia, the Boronia blossom has thrown forth its sweetness for Nature's mysterious purpose for untold centuries. To-day that sweetness has been imprisoned in

### CONCRETE OTTO OF "BORONIA"

of which Plaimar, Ltd., of Perth, are the sole suppliers. This perfume was first offered for sale at the Wembley Exhibition.

*Samples and Prices from Sole Agents:*  
**PLAISTOWE & CO., LTD.**  
 KING'S CROSS, LONDON: & PARIS  
 Telephone :: :: North 829 (3 lines).  
 Telegrams :: :: Plaistowe, Kincross, London.  
 Cables :: :: Plaistowe, London.

## "PLAIMAR" SANDALWOOD OIL

"PLAIMAR" Oil, which is the result of years of research and experiment, retains the delicate aroma of the West Australian Sandalwood in all its subtle perfection. The success of "Plaimar" is a guarantee of its quality. The first shipment was not made until June, 1921, and to-day the great factories of Plaimar, Ltd., are hard put to it to cope with the demand.

**Aromatic Chemicals** **Flower Oils**  
**Synthetic Perfumes** **Essential Oils**  
**CHEMICAL WORKS, ROERMOND**  
 H. RAAB & CO., ROERMOND, HOLLAND.

*Agent for the U.K.:*

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**DODGE & OLCOTT CO.,** **20 MARK LANE,  
LONDON, E.C.3.**

THE "D & O" BRAND

*is the "Standard of Quality" for*

OILS of BAY, CEDARWOOD, PATCHOULI, PEPPERMINT,  
SASSAFRAS, ETC.

BALSAMS of Copaiba, Peru, Tolu.  
TONKA BEANS, Angosturas.

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ROYAL 2843.

Telegrams—  
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Established 1795.

# LAUTIER FILS

Works : GRASSE (France) &amp; BEYRUT (Syria).

Essential Oils —————— Synthetics.  
All Raw Materials for Perfumery.

Absinth	Laurel
Almond, bitter,	Lavender
Angelica [S.A.P.	Lemon
Basil	Mace
Bay	Melissa
Bergamot	Neroli big and Syn.
Bois de Rose femelle	Orange
Cajuput	Otto de Rose
Caraway	Patchouli
Cinnamon	Peppermint
Cloves	Rosemary
Copaiba	Rue
Costus	Sandalwood
Cubeb	Spike Lavender
Fennel	Tansy
Geranium	Tarragon
Honey	Thyme
Hyssop	Vetivert

Olive, Peach Kernel, Sweet Almond Oils  
Floral Waters.

Wholesale and Export only.

LAUTIER FILS, Ltd., 4 Denman St., London Bdg., S.E.1  
Tel. Add. : "LAUTIER, PHONE LONDON." Telephone: HOP 2819.



Perfumes by Roger & Gallet are preferred by the discriminating among your customers. LE JADE is especially highly favoured.

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PARIS

PARFUMERIE

Gold Medal Cannes      De L'ile  
Philadelphia      NOTRE DAME

We solicit a Trial Order for our  
Watch-Shape Flask Series of

## EAU DE COLOGNE AND LAVENDER WATER

They are Ready Sellers and bring  
GOOD PROFITS to the RETAILER and  
GOOD VALUE to the CUSTOMER.



Prices :

EAU DE COLOGNE		LAVENDER WATER	
½ oz. per doz.	10/-	½ oz. per doz.	11/3
1 "	15/9	1 "	18/6
2 "	28/6	2 "	34/-

We are actual distillers of Oils of  
Neroli, Lavender, Bergamot, &c.,  
and our prices are based on the  
manufacturing costs of the oils.

**SPURWAY ET CIE.**  
LIMITED.

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Telegrams: "Neroli, London."  
Telephone: Bishopsgate 1372.

Factories & Distilleries: Cannes-Grasse, Riviera.  
Technical Laboratories: Paris.

NEW YORK. LEIPZIC. KINGSTON (ONTARIO).

# A word on your window

You fill your window  
to empty your shelves

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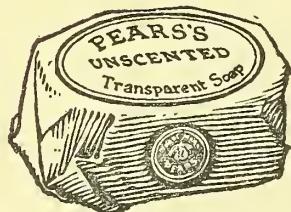
Do you always suc-  
ceed?

Every article you put  
in your window should  
awaken a dormant  
desire to possess it.

The widespread and  
magnetic appeal of our  
current Beauty adver-  
tising is creating that  
desire. The desire of  
women for beauty. . .

For you and your  
window it remains to  
clinch the matter, turn-  
ing, by the sight of  
Pears, desires into  
sales.

# Pears



A. & F. PEARS, Ltd.,  
71-75, New Oxford St.,  
LONDON, W.C. 1.

# DEARBORN (1923) LTD.

37 Gray's Inn Road, London, W.C.1

## Toilet Specialties.

	Price per doz.	Selling Price to Retailer P.A.T.A.
PILENTA SOAP ...	10/-	1/-
A complexion soap.		
PROLACTUM ...	10/-	1/-
For the lips.		
PARSIDIUM JELLY ...	10/-	1/-
For wrinkles.		
ALLACITE OF ORANGE		
BLOSSOM ...	22/6	2/6
A dressing cream.		
BORANIUM ...	22/6	2/6
A hair tonic.		
CLEMINITE ...	22/6	2/6
For a face lotion.		
COLLIANDUM ...	22/6	2/6
For a face tint.		
PERGOL ...	22/6	2/6
A deodorant.		
TEKKO PASTE ...	22/6	2/6
Camphor cream.		
STALLAX ...	22/6	2/6
For a shampoo.		
JETTALINE ...	31/6	3/6
For clearing the skin.		
PHEMINOL ...	36/-	4/-
A depilatory.		
MENNALINE ...	36/-	4/-
For the eyelashes.		
MERCOLIZED WAX ...	{ 18/- 31/6	2/- 3/6
A face cream.		
STYMPOL ...	36/-	4/-
For oily complexions and blackheads.		
SILMERINE ...	22/6	2/6
Hair-curling fluid.		
BARSYDE ...	22/6	2/6
Dandruff eradicator.		
TAMMALITE ...	22/6	2/6
For grey and faded hair.		
LIQUID PERGOL ...	31/6	3/6
To check excessive perspiration locally.		
BICROLIUM ...	22/6	2/6
For whitening the hands.		
COCONOIDS ...	31/6	3/6
For figure development.		

## The Products of

Messrs. PARKER, BELMONT & CO.

CLYNOL BERRIES ...	{ 36/- 58/6	4/- 6/6
For obesity.		
SOFT PALERIUM ...	45/-	5/-
For wrinkles.		
LIQUID NAIL POLISH ...	10/-	1/-
Brilliant and lasting.		

Stocked by ALL Wholesale Houses.

## COLONIAL DEPOTS AND AGENCIES.

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South Africa: LENNON Ltd., Cape Town, etc.

SIVE BROS. & KARNOVSKY, Johannesburg.

India: FRAMJEE & SON, Bombay.

A. L. CHOUDRY, Calcutta.

New Zealand: SHARLAND & CO., Auckland and Wellington.

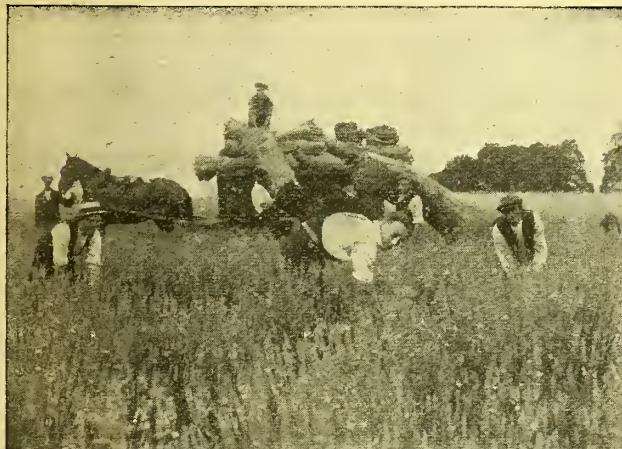
South America: DEARBORN (South America) Ltd., Calla Salta 264, Buenos Aires.

Straits Settlements & Federated Malay States: MEDICAL HALI, Ltd., Singapore.

*WE beg to announce that we are showing at the forthcoming CHEMISTS' EXHIBITION, which is to be held at the Town Hall, Leeds, from September 15th to September 19th, inclusive.*

# POTTER & MOORE'S 1749 MITCHAM LAVENDER WATER

*A perfume of distinction which has stood the test of time!*



FROM THE  
LAVENDER  
FIELDS

TO THE  
BOTTLE



The photograph shows our Lavender harvesting operations in progress. The blossoms here depicted have now been gathered and treated at our Lavender Distillery at Mitcham, where eventually they will yield Potter & Moore's famous 1749 Mitcham Lavender Water, the perfume which has enjoyed public esteem since 1749, when this fragrant, delightfully sweet preparation was first placed on the market by Potter & Moore.

POTTER & MOORE, The Lavender Distillery, Mitcham, Surrey

*Sole Proprietors :*

**W. J. BUSH & CO., Ltd., Ash Grove, Hackney, London, E.8**

*Sole Scottish Agents for Articles of Perfumery :*

**MUNRO, McLAREN & SUTHERLAND - - - GLASGOW**

# This deserves a place on your counter



*Piesse & Lubin Ltd.*

BRITISH EMPIRE  
EXHIBITION.  
VISIT US AT  
**STAND A11**  
CHEMICAL HALL,  
PALACE of INDUSTRY.

will be pleased to answer enquiries concerning their other high-grade products, and to forward catalogue on request.

**PIESSE & LUBIN, Ltd., Parfumeurs, 244 HIGH HOLBORN, W.C.1**



#### RETAIL PRICES

No. 1	1/-
" 2	1/9
" 3	2/6
" 4	3/9
" 4R	5/-
" 5	7/6
Bath Sizes	

All SORBO lines promptly despatched on receipt of order.

## STOCK SORBO— the Sponge with the Big Selling Story.

WHEN you can say of a sponge that it outlasts four ordinary sponges while costing less than one; that its soft springy friction is unrivalled in promoting a healthy skin and fresh complexion and that *soap improves it*, you have got three big selling arguments which must—and do—prove irresistible.

Show Sorbo Sponges in your window, and get your share of the trade.

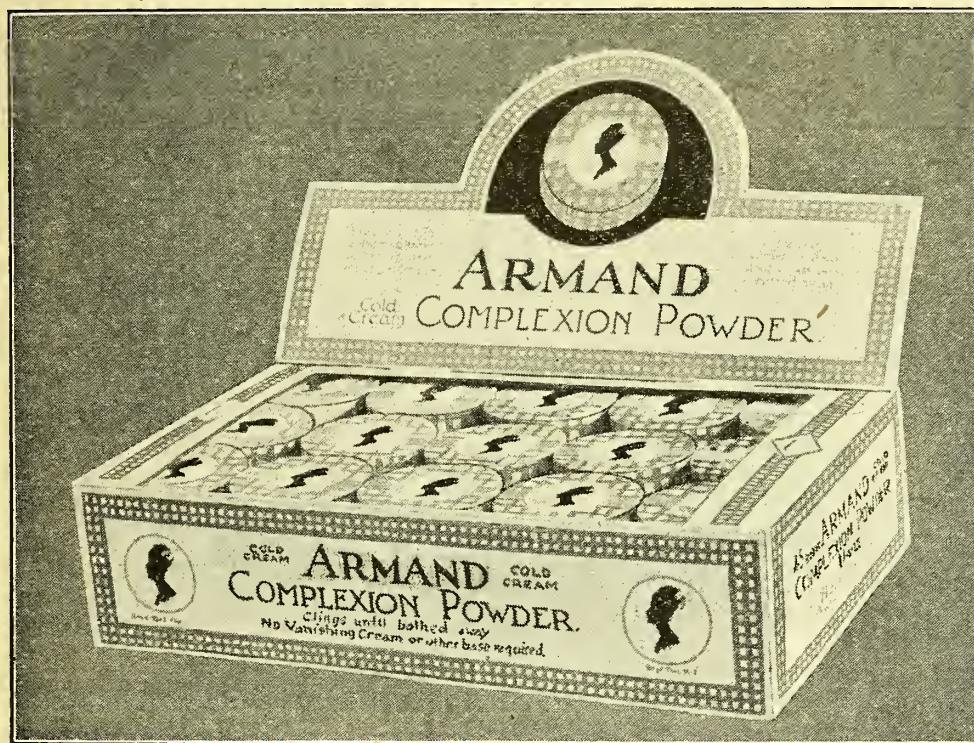
# *Sorbo sponge*

THE MOST ABSORBENT RUBBER SPONGE  
**SORBO RUBBER-SPONGE PRODUCTS, LTD.**

Sorbo Works :: Woking :: Surrey  
Telegrams: Sorbo, Woking. Telephone: Woking 666.



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COLD CREAM

## COMPLEXION POWDER

Nearly 6d. profit on every box!

Keep a carton of 1/- Trial size in view and watch it build repeats.

Carton (45 boxes) retails at ...	... ...	... ...	... ...	... ...	... ...	... ...	£2 5 0
Costs, carr. paid £1 4 9 (Less 5% 30 days 1s. 3d.)							1 3 6
Your Profit... £1 1 6							

*Florian & Armand Ltd.*

*Queensway, Ponders End,  
Middlesex*

*9/6 Profit  
in every £1 you sell  
of Armand Goods*



# Price's Old English Lavender Soap

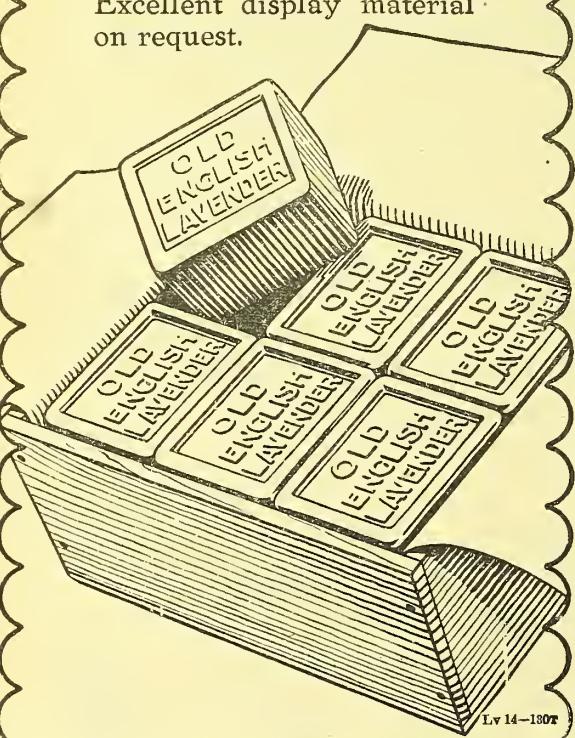
*Biggest selling line of  
its class*

Price's Old English Lavender Soap is the biggest selling line of its class.

Price's own special process ensures that the delicate lavender fragrance is retained by the tablet to the last wafer.

Link up with our widespread publicity and reap the benefits of a greater turnover.

Excellent display material on request.



PRICE'S SOAP CO. LTD: LEVER HOUSE, BLACKFRIARS, E.C. 4

Lv 14-180T

## A new Vanishing or "after shave" Cream

*Littona*

### Vanishing Cream

has not the usual disadvantages of face creams as it is *not sticky* and does not leave a sticky feeling.

It is *rapidly absorbed* by the skin.

It is only *slightly perfumed* and is very economical in use.

It leaves the skin with that soft, velvety surface so much desired and is very refreshing.

These merits are quickly being appreciated by the public.

It always pays to stock the best article of its kind. Retails: Tubes, 1/3 each. Pots, 2/- each.

May we send you a small trial supply?

Manufactured by the proprietors of "LITTO" hair preparations.

LITTO LABORATORIES  
2 Newington Green, LONDON, N.1

HERE IS THE LINE you must surely have been looking for in order to **increase your profits** and meet your customers' ever-increasing demand.

### "GALJADO" SCURF LOTION for all SCALP and HAIR TROUBLES.

Small size, 10/6 per dozen. S.P. 1/6 per bottle.  
Standard " 16/6 " S.P. 2/6 "  
Large " 33/- " S.P. 4/6 "

"GALJADO" TOILET PREPARATIONS are universally renowned, and are obtainable of all Wholesalers or direct. Current price lists sent free on application to

THE GALJADO PERFUMERY CO., Ltd.  
9 Goswell Road, LONDON, E.C.1.

### SPECIAL SEASONABLE LINE OF HIGH-CLASS FRENCH GABILLA TOILET SOAPS

Beautifully packed, each Tablet in a fancy coloured cretonne bag, in fashionable colours and three such tablets in a fancy covered box. Specially suitable for travelling and seaside use.

At 16/6 per dozen boxes. Post Free.

We can supply *Tooth Brushes, Shaving Brushes, Hair Brushes, and all leading makes of Safety Razors and Blades* at lowest quotations.

Let us know your requirements. We can supply them.

Terms: *Nett Cash with Order or goods sent against approved refs.*

L. FRANKENBERG, 15 Stoney Lane, Houndsditch,  
LONDON, E.1.  
Phone: Avenue 1170.

# 4 out of every 5

Four out of five over forty, and thousands younger, of those who pass your pharmacy, are prospective purchasers of Forhan's For the Gums.

For that is the official percentage of people who suffer from Pyorrhœa—the disease that Forhan's For the Gums alone, of all dentifrices, can check or prevent.

Forhan's For the Gums national advertising tells them, year in, year out, what to do: "Visit your dentist regularly; use Forhan's for the Gums twice daily."

Forhan's For the Gums showcards show where this safe, pleasant protection from Pyorrhœa is to be purchased.

Are they in your window; on your counter; bringing record, unlimited profits to your till?

They're free on request.

THOS. CHRISTY & CO.  
4-12 Old Swan Lane, London, E.C.4

# Forhan's

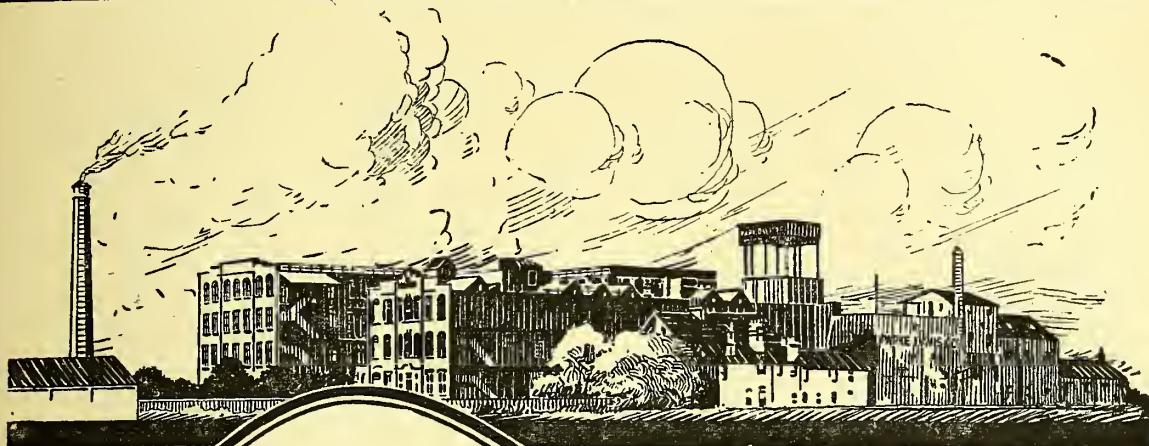
FOR THE GUMS

*More than a Tooth Paste—it checks Pyorrhœa*

A Show Card of this bathing scene, in full colours, is now available. Send us a post-card for a copy, it will help your holiday sales.







Build your Business  
on *SOUND LINES*

## Thirty times as germicidal as pure phenol!

That is the strength of Germicidal Soap, P., D. & Co. Buyers of so-called disinfectant soaps have a right to know whether they have any real germicidal power.

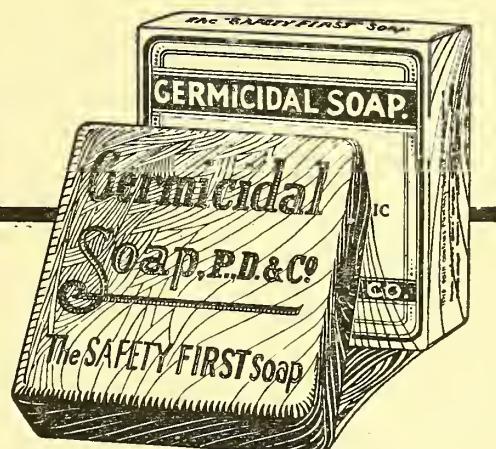
Germicidal Soap, P., D. & Co., can appeal to every customer who enters your pharmacy. Doctors and nurses are constant users of it as an antiseptic for hands, instruments, etc. The public is quick to grasp its value in the home as—

- A precaution against infection.
- A shampoo for scurf or dandruff.
- A destroyer of pediculi.
- A preventive of (not a cover for) perspiration odours.
- A dog soap.

A display outer of Germicidal Soap, P., D. & Co., and a show card on your counter, or in your window, will quickly produce enquiries and sales. Have you tried such a display yet?

## Germicidal Soap, P.D.&Co

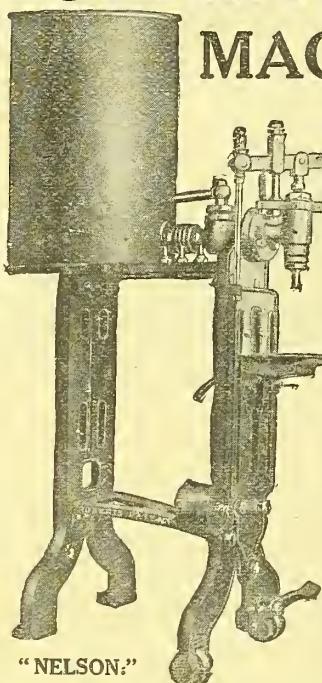
*Send for Terms*



PARKE, DAVIS & Co.  
50-54 Beak Street  
LONDON - - W.1

M.R.P. - - - 1/3 per tablet  
M.W.P. - - - 10/2 per dozen  
—and it can only be sold by chemists

## ROBERTS' ORIGINAL PATENT BOTTLE-FILLING MACHINES



Don't waste money on imitations, buy Roberts' Machines which actually Created the Records for

### CLEANLINESS SIMPLICITY

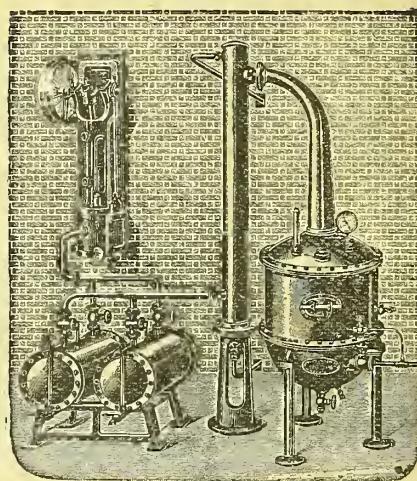
and Rapidity in  
Bottle Filling.

*Write for new  
Price Lists.*

*NOTE the Address :  
ROBERTS' PATENT  
FILLING MACHINE CO.  
33 ROUND CROFT ST.  
BOLTON.*

Our latest patent  
"Alpha," price £12,  
will fill 10 gross bottles  
per hour.

*Write for Particulars.  
All Rights Reserved.*



### STILLS, VACUUM STILLS, VACUUM PANS.

Evaporating Pans. Autoclaves and Digestors.

Special Apparatus and Plant for Manufacturing Chemists.

Sole Makers of Bennett's Patent "Ideal" Annular  
Film Condensers. Shears' Patent Mulser.

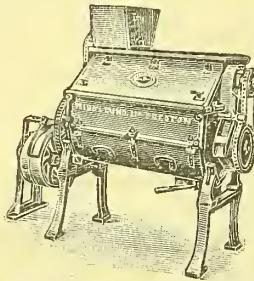
### BENNETT, SONS & SHEARS, LTD.

Engineers & Coppersmiths,  
43 & 44 Shoe Lane,

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### "ATLAS" PATENT SIFTERS & MIXERS

Combined or Separate Machine.



SIFTER Brushes adjustable, giving maximum capacity.

MIXER. With our Patent Agitator materials are quickly mixed and automatically discharged.

HIND & LUND,  
LIMITED  
ATLAS WORKS,  
PRESTON.

Established 1791. [4]

### DISTILLED WATER



Brown's Stills are perfectly automatic. Can be run night and day without attention. Patented in U.K. and Continental Countries.

Extraordinarily efficient and economical. Made for gas, steam, oil or coke fire heating.

*Full particulars and prices free on application*

**BROWN & SON,**  
Alembic Works

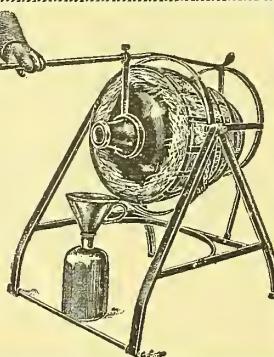
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### CARBOY STAND AND TILTER.

For drawing off small quantities of acids, etc. from Carboys, with ease and safety.

The Carboy can be tipped to any position with one hand.

R. & H. LEIGH & SONS,  
LIMITED,  
Carboy Hamper Manufacturers,  
BOLTON.



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UPRIGHT CENTRE CASES, WALL CASES,

GLASS COUNTERS, MIRRORS

WINDOW FITTINGS, GLASS SHELVES,

SHOW STANDS, DRAWERS, DESKS

CHECK TILLS, &c. Immense Stock.

NEW and SECOND-HAND.

Ready for Immediate Delivery. For Sale or Hire.

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# SEED DRESSINGS

*Tomlinson and Hayward, Ltd.*

**LINCOLN**

ESTABLISHED 1842

Have for many years supplied SEED DRESSINGS, SULPHATE OF COPPER and all requirements. They will be pleased to quote and sample.

**PLEASE NOTE.**—THEY HAVE NO CONNECTION WITH ANY OTHER FIRM.

**"BONVET" WORM CURE**

**EXPELS WORMS.**

Are you among the live stockists who display this popular line? If not, you are daily losing profits that might be yours.

NO RISK!—"BONVET" WORM CURE SELLS ITSELF. Send TO-DAY for artistic outer containing 1 dozen 1/3 packets for display on your counter.

Wholesale Price, 10/- per dozen. :: Carriage Paid.

LEWIS SMITH, Manufacturing Veterinary Chemist, HEREFORD

## "Rodine" Routs Rats

and makes new customers. It yields nearly 100% protected profit to all Chemists who buy direct. Write now to the Maker:

**HARLEY,**  
Manufacturing Chemist,  
PERTH, SCOTLAND.



**The fly trap that secures good profits for You!**

THE Wasp Flyband is the quickest selling and most efficient fly trap sold. It keeps its condition for an indefinite period and thoroughly satisfies all purchasers because it is clean to handle and perfectly hygienic. It ensures a rapid turnover and secures for you liberal protected profits.

**The WASP FLY BAND**

Prices and particulars from Sole Manufacturers:  
F. W. HAMPSHIRE & Co. Ltd.  
Riverside Works, Derby.

**RASEVAN** **THE**  
MOTH KILLER  
(REGD.)  
RETAILS AT 1/- PER BLOCK.  
For Trade Terms apply—

Norman Evans & Rais Ltd. 50 ELLESMORE STREET, HULME, MANCHESTER.

SHERLEY'S  
DOG MEDICINES  
INSECT POWDER  
SHAMPOO, and  
LACTOL  
(P.A.T.A.)



These preparations command a ready sale, and are by far the largest advertised of any on the market. They are protected at prices that leave an excellent margin of profit for the retailer, and the terms on which they are supplied preclude any possibility of loss. We have an excellent range of literature and show cards, and do all in our power to assist chemists by referring mail customers to them.

*Write for Price List and Terms.*

**A. F. SHERLEY & CO., LTD.**  
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Tel. No.: Hop 1897. Telegrams: "Sherleydom, London."

# SOL-VO SANITARY ROLLS & PACKETS.



# SOL-VO

REGD

THE BEST & PUREST

## SANITARY PAPER



	per doz.
Three dozen Rolls	... 7/- net.
Half gross "	... 6/6 "
One gross "	... 6/- "
Five gross "	... 5/3 "

	per doz.
Three dozen Packets	... 10/- net.
Half gross "	... 9/6 "
One gross "	... 9/- "
Five gross "	... 8/3 "

CARRIAGE PAID.

CASES FREE.

# FORD, SHAPLAND & CO. Ltd.

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TELEPHONES: { HOLBORN 5503  
CITY 65.



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Krumbled Bran is a health necessity and should be eaten daily. It naturally and permanently relieves constipation.

Prices and samples from—

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A safe, simple, and reliable remedy for Children's Ailments is advertised so extensively in the daily and weekly Press as to bring mothers to the retailer without effort on his part.

The selling has been done before the mother reaches the chemist, and, having supplied her, it is only common sense to claim she will buy other family necessaries from him. Moreover, the retailer has a profitable return on a quick turnover.

For Direct Terms apply to—  
OSCAR SCRUTON & CO., YORK

## For GLASS BOTTLES

Write to

*Fred. Youldon*

Formerly proprietor of E. YOULDON. Established 1840.

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Wires: "Youldon, Stock, London."

Phone: London Wall 3529.

# TASTELESS CASTOR OIL

The Sté Ame. des Etab<sup>s</sup>. A. GARBIT, of MARSEILLES, beg to announce that they have succeeded in producing a specially treated MEDICINAL CASTOR OIL, TASTELESS to an extent previously unknown.

This quality will be known under their brand "PERLE."

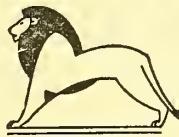
*Samples and quotations on request from*

**ASTOR, BOISSELIER & LAWRENCE**  
5/6 ST. DUNSTAN'S HILL, E.C.3. 'Phone: ROYAL 1993.

*Sole Agents and Distributors.*

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PRIZE MEDALS:—



PARIS 1878.  
MELBOURNE 1888.

Chemists visiting the above should not fail to call at

### Stand A.38,

Chemical Section, Palace of Industry,  
where they will see a series of  
PACKED MEDICINES  
of unsurpassed beauty, finish and quality.

H. & T. KIRBY & Co. Ltd., WILLESDEN GREEN, LONDON, N.W.2.

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## MANCHESTER CHEMISTS' EXHIBITION

SEPTEMBER 29th to OCTOBER 4th

Organisers:  
Provincial Exhibitions Ltd., City Hall, Manchester

**CHEMISTS SUNDRIES LIMITED**  
15. CHAPEL ST., MANCHESTER

**WONDERFUL VALUE!!**

GUARANTEED 8 OZ.

**GRAD. OR PLAIN MEDICAL BOTTLE**

12/- gross for not less than 3 gross.

Free delivered by motor within a radius of thirty miles from  
Manchester and Free on rail to other parts.**FREDK. FINK & CO.**

10 &amp; 11 MINCING LANE, LONDON, E.C.3.

**SPECIALITIES.**—Cums Adrabrican  
Tragacanth as Imported or finely powdered

**KODAK FILMS**  
DEVELOPED AND PRINTED  
**SAME DAY**

Bright Sparkling Results that will help you Build  
Business. Moderate Charges. Wholesale Terms.  
Unfailing Service. Write for List and Terms.**WALLACE HEATON LTD.**17-27 CHANGE ALLEY SHEFFIELD.  
We buy overstocks of cameras for cash and offer big prices.

For Cartons &amp; Folding Boxes,

**BOXFOLDIA LTD.**

BIRMINGHAM

**Pyrogallic Acid Gallic Acid**

Manufactured by J. L. ROSE

At ABBEY ROAD, BARKING, LONDON, E.  
Wholesale and Export only.**LABELS****ELLAMS & COMPANY,** Medical Label  
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For Chemists, Drug Stores and  
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1,000. Circles 3/6 per 1,000. Pure  
Gummed Paper. Price List and  
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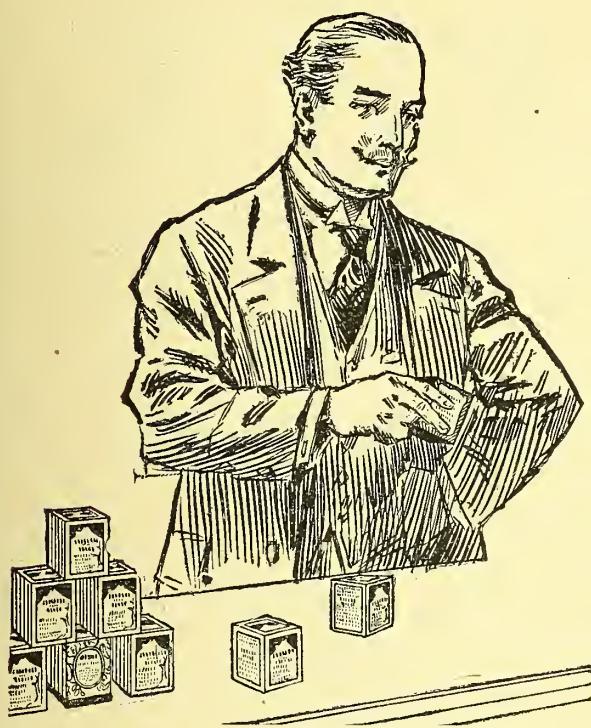
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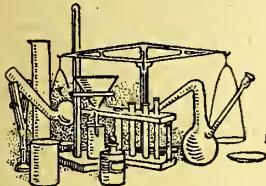
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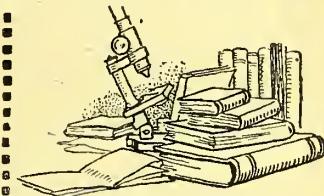
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## Wills

MR. RICHARD SKINNER, chemist and druggist, 49 Tweedy Road, Bromley, who died on June 18, left estate of the gross value of £2,446 0s. 11d., of which £2,239 8s. 5d. is net personalty.

MR. THOMAS HARRIS CRUSE, Ph.C., 23 Laurence Road, Southsea, who died on July 21, left estate valued at £495 12s. 5d. Probate has been granted to his daughter, Miss J. Cruse, Harpenden, and George H. I. Cruse, 16 Laurel Bank, Halifax.

MR. RICHARD DE QUINCEY QUINCEY, Inglewood, Chislehurst, Kent, and of 143 Fenchurch Street, London, E.C., merchant, of Richard Quincey & Son, who died on May 19, left estate of the gross value of £159,205. He gave £500 to the Commercial Sale Rooms Benevolent Fund.

## Business Changes

TIMOTHY WHITE CO., LTD., chemists, have opened a branch at 126 High Street, Chatham.

MR. EDGAR JONES, Ph.C., 18 Trafalgar Street, Brighton, has acquired the business of Mr. A. G. Doble, chemist and druggist, 43 Gardner Street. Mr. R. Lawrence, chemist and druggist, who attained commissioned rank during the war, will be in charge.

TELEPHONE SERVICE CRITICISED.—A vigorous criticism of the inefficiency of the telephone service has been addressed to the controller of the London area by Mr. Edgar P. Chance (Chance & Hunt, Ltd., manufacturing chemists, Oldbury); as a protest, Mr. Chance has decided to be taken off the list of those who "submit to these indignities."

## English and Welsh News

The Editor would be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

### Inquests

The death of Mr. T. L. Hewitt, chemist and druggist, who lived at Leyton, London, E., was the subject of an inquiry at Whips Cross Infirmary on August 7. The widow stated that her husband had been working at a hospital for three weeks; in July he came home looking very ill, and took to his bed. A medical witness said that, when admitted to the institution, Mr. Hewitt had signs of chest trouble and diabetes. He was given a course of insulin treatment, but he died unexpectedly. A *post-mortem* examination showed that death was due to pulmonary tuberculosis, diabetes and cardiac degeneration. A verdict in accordance with the medical evidence was given.

An inquest was held in the City of London, on August 11, on the body of George Holt, engineer, who died in an engine-room on August 5. Sir Bernard Spilsbury gave evidence of a *post-mortem* examination made by him. He was convinced that Holt died from carbon-dioxide poisoning. It was a very uncommon form of death, and he had only met one or two similar cases. When breathed in a pure state, the gas undoubtedly acted as a poison in addition to its action in keeping out oxygen. It acted very quickly, and made a man muscularly powerless, and death resulted in five minutes. It acted almost as a narcotic poison. A verdict of "Death by misadventure" was returned.

### Liverpool

The city is looking forward to the "Liverpool Week" at Wembley in September.

The heat wave has stimulated a seasonable trade and driven many residents to the Isle of Man and to Scotland.

Alderman Robert C. Herman is one of the thirty-eight justices of the peace added to the Liverpool city roll in recognition of civic service.

A central-area assistant has returned this week from a cycle tour which embraced Calais, Paris and Dieppe. He reports that the surfaces of the French roads are rough and the cobble stones of the villages terrible.

Several pharmacists have been waited upon by a lady who seeks the 4,000 hours' apprenticeship for her daughter, who has passed the first part of the Qualifying examination and is under tuition for the second half. Her mother has been informed that the daughter should have gone behind the counter at an earlier stage, and that a suburban, not a city, pharmacy is suitable for an apprentice.

### Manchester

The Manchester branch of R. W. Greeff & Co., Ltd., chemical merchants, London, E.C.4, has been removed to Parsonage Chambers, 3 Parsonage.

For the visit to Port Sunlight, on September 3 (C. & D., August 2, p. 166), there will be reserved carriages on the train leaving the Central Station at 10.30 a.m. for Liverpool. Tickets (5s. each) are obtainable from Messrs. J. H. Franklin, T. Miller, or any member of the council of the Association.

C C

## Miscellaneous

PARLIAMENT ADJOURNS.—The House of Commons on August 7 adjourned until October 28.

WINDOW-SMASH.—A window in the pharmacy of Mr. J. Walker, chemist and druggist, Malpas, was smashed by a motor-van on August 1.

CHEMICAL WORKERS' DISPUTE WITH EMPLOYERS.—A lock-out at the works of B. Laporte, Ltd., manufacturing chemists, Luton, is reported by the "Daily Herald." A conference between the parties to the dispute was held, the "Daily Herald" states, on August 12.

SWIMMING CONTEST.—Teams representing the London (South-West) Pharmaceutical Association and Allen & Hanburys, Ltd., are competing at the Wandsworth Baths on August 15, at 9 p.m. Members interested in this branch of sport are urgently required, and should communicate with Mr. S. C. Springett, 25 Mayford Road, S.W.12.

WEMBLEY VISITORS.—The employees of Cerebos, Ltd., to the number of 1,300, visited London on August 7 to spend the day at the British Empire Exhibition. The party were entertained to breakfast by the directors at the Great Central Hotel, Marylebone, and afterwards taken in charabances to see the sights of London. The rest of the day was spent at the exhibition.

THEFT CASE.—At Old Street Police Court, London, on August 8, Alfred Walter Lewin, packer, and Charles Storey, counter hand, were charged on remand with stealing goods, the property of their employers, The British Drug Houses, Ltd., Graham Street, N. (C. & D., August 9, p. 214). The magistrate said that the accused had been persistently stealing for some time, and but for their war service would have been sent to prison. He bound both men over, and ordered Storey to make some restitution.

PHARMACEUTICAL EDUCATION IN SHEFFIELD.—The Sheffield education authorities have approached each chemist in the city asking for the number of students likely to attend the Central Commercial College during the coming session, in order that they may provide an adequate staff of teachers. During the last session sixty-two students were enrolled, and an exhaustive report has been presented to the local branch of the Society, giving the age of students, attendances, and marks obtained—graded according to the first, second and third years of study.

FIRE.—The premises occupied by The Jackson Co., manufacturing chemists, and Mallagh & Co., manufacturing chemists, 32 Great Dover Street, London, S.E., were involved in an outbreak of fire on August 9. The stock suffered considerable damage, and Mr. Edward Jackson and two of his firm's employees had a narrow escape from suffocation.—There was an outbreak of fire, on August 12, at 127 Long Lane, Bermondsey, London, S.E., occupied by Austin, Ltd., chemists. The outbreak, which is attributed to a light being thrown down, did not cause serious damage.

## Scottish News

## Brevities

The rambling section of the Glasgow Pharmacy Club will visit Strathkelvin on August 19, leaving Queen Street Station for Dullatur by the 2.50 p.m. train.

Mr. G. Alexander, chemist and druggist, Alford, Aberdeen, has recently acquired the business of Mr. G. Smart, chemist and druggist, Aboyne. Miss C. J. Alexander, chemist and druggist, Mr. Alexander's sister, is carrying on the Alford business.

## Edinburgh

A West-end chemist displays in one of his windows a heap of recent orders for one of his specialities.

In the junior championship events of the Edinburgh Northern Harriers, the 220-yds. race was won by J. D. Hamilton, son of Mr. Hamilton (John Mackay & Co., Ltd.).

An instructive article on glycerin appeared in a recent issue of the "Edinburgh Evening News." After describing its production, uses in medicine, and some of the toilet preparations into which it enters, the following recipe is given: "A simple and efficient tooth paste may be made by mixing precipitated chalk and glycerin to a stiff paste. Colour with cochineal and flavour with a few drops of peppermint oil."

## Irish News

## Brevities

Mr. A. W. Young, M.P.S.I., Sligo, has been appointed a peace commissioner.

Mr. R. Armstrong, Ph.C., Main Street, Cootehill, is retiring, and the business will be sold by auction on September 1.

At a meeting of the creditors of Mr. John G. Greaney (trading as the Breffni Pharmacal Co.), Manorhamilton, held in Dublin on August 8, an offer of 6s. 8d. in the £ was made, payable in three instalments. Among the creditors are: Ayrton, Saunders & Co., Ltd., £21 10s.; British-American Safety Razor Co., Ltd., £11 5s.; Cartwright, Ltd., £17 10s.; Elliott, Thompson & Blair, £24; J. & J. Haslett, Ltd., £13 5s.; Kodak, Ltd., £33; Osborne & Co., £11 7s.; Parke, Davis & Co., £10; Sligo Drug Co., £12 10s.; Solwaye Frères, £20 9s.; United Drug Co., £21 10s.; T. Waide & Sons, £12.

## Belfast

Licences under Section 2 of the Poisons and Pharmacy Act, 1908, have been granted to Mr. A. S. Ritchie, florist, High Street, and to Mr. W. Hamilton, florist, Arthur Street.

A sum of £60,000 has been advanced to the Claims Fund (Intoxicating Liquor Act, 1923) to pay the compensation awarded pharmaceutical chemists and registered druggists in Northern Ireland for loss of profits owing to deprivation of their wine licences, and to pay grocers who have been deprived of their spirit licences.

## Dublin

In the High Court of Justice, Dublin, recently, the liquidator of Fine Chemicals, Ltd., was granted a supplementary order to that made by the Court in July (C. & D., July 19, p. 83), stating that there was no necessity for the liquidator to make further inquiries as to whether there are any assets of the company in existence in America, or whether the company has any liabilities in America.

At a meeting of the Court of Apothecaries' Hall of Ireland, held in Dublin recently, the following appointments were made: Governor, Dr. J. Sheppard; deputy governor, Dr. J. F. Daniel; representative on medical council, Dr. E. Magennis; registrar, Dr. H. Mason; secretary, Dr. T. G. McGrath, P.C.; court of directors, Drs. A. Charles, P. Hayden, W. F. Delaney, J. F. Daniel, M. Keogh, T.D., H. Mason, J. B. Magennis, E. Magennis, T. G. McGrath, E. A. Magennis, M. O'Donnell, R. V. Murphy, P. Morris, J. Sheppard, and B. Burke-Kennedy.

## Retail Pharmacists' Union

Leicester.—The annual meeting of the local branch took place on July 30. After the secretary's and treasurer's reports were read, it was announced that the winners of the window-dressing competition were:—(1) Mr. A. Wyse (Needhams, Ltd.), 83.6 per cent., silver cup and cheque; (2) Mr. W. Williamson (Young & Son), 82.2 per cent., cheque; (3) Mr. J. L. Langham (Mr. F. W. Goodess), 82 per cent., cheque. The judges remarked that a greater interest was needed by the proprietors to encourage this form of advertising. The officers for the ensuing year were elected as follows:—Chairman, F. G. Blockley; Vice-chairman, H. Dennis; Secretary, H. A. Martin; Treasurer, W. K. Inglis; Committee, Messrs. Hind, Ward, Barker, Clarke, Fonyan, Spiers, Young and Wilby.

## Phenacetin Duty

At Mansion House Police Court, London, on August 7, Mr. A. C. Henry, chemical merchant, St. Dunstan's Hill, E.C., appeared in answer to two summonses issued at the instance of the Commissioners of Customs and Excise, charging him with having made false statements of value in connection with the importation of phenacetin. Mr. Roland Oliver, for the defence, pleaded "Not guilty."

### COUNSEL'S OPENING STATEMENT

Mr. G. G. Gibson, prosecuting, said that the charge was brought under the Customs Consolidation Act. The chemicals in question were consignments of phenacetin, imported from the Farbenfabriken vorm. Friedrich Bayer & Co., Leverkusen, Germany. The declarations were made on February 26 and March 3, and subsequently it was ascertained that Mr. Henry was, before the war, the agent of Bayer & Co. for disposing of their products in England. Since then there had been various lawsuits, and as a result of those proceedings, and an agreement reached during those proceedings, the Bayer Products, Ltd.—a company registered in England and having the sole rights as to the trade-marks of the German company—imported chemicals from the German company. Under the agreement the German firm invoiced the chemicals at cost price to the English company, who, in consideration of this, paid half their profits to the German company at the end of each year. Mr. Henry was a director of the English company, and was the nominee of the German company for the purpose of protecting their interests. These facts became known to the Commissioners of Customs and Excise after the declarations in question had been made by Mr. Henry as to the value of the chemicals imported. Mr. Henry was also an independent merchant dealing in chemicals, and in the two cases under consideration he was the importer of the goods and had caused the declarations to be made. He had wished to import phenacetin, and, in order that the German company might get the advantage of a certain payment of German reparations levied from their own government, he had sent an order to Germany so that it would be received before November 15 last year. According to the agreement between the German and the English companies, however, Mr. Henry was not entitled to order the goods. The transaction passed through the books of the English firm, who would pay the German firm for the goods, and Mr. Henry would pay the English company. He had contended that the English firm were really the importers, but, whether they considered themselves to be the importers or not, Mr. Henry was the person who had represented to the Customs that he was the importer, had made the declaration as to the value of the goods, and had paid the duty—an *ad valorem* duty. As to the actual transactions, Mr. Gibson said that on February 26 the value, declared to the Customs, of five 1-cwt. kegs of phenacetin, with freight and insurance paid, was £91 18s. 3d., which worked out at 3s. 2d. per lb. On March 3 there was a consignment of fifteen 1-cwt. kegs, the value declared being £266 12s., which worked out at 3s. 1d. per lb. There were other values and prices, said Mr. Gibson. According to the books of the Bayer Products, Ltd., they paid the German firm £280 10s. 9d., whereas the value put down for Customs purposes was £266 12s.; in the other case the amount paid was £96 5s. 7d., as against the £91 18s. 3d. In explanation of that, Mr. Gibson said that German exporters had to obtain an export licence, and paid a fee for it. That was part of the price when the goods came to England, and apparently an invoice was sent to Mr. Henry from the German firm, omitting that amount, and one was sent to Bayer Products, Ltd., which included it. The difference was £20 on the two consignments. Another figure was the price which Mr. Henry had told the Customs representatives he had paid to Bayer Products, Ltd., for these goods. He said he had paid 4s. per lb., less 5 per cent., which was a price between 3s. 9½d. and 3s. 10d., and he gave the actual figures of the amounts paid as £319 4s., in place of the value set on them

for Customs purposes, namely, £266 12s., and £112 in place of the £91 18s. 3d. The price at which the goods were ordered was 4s. 9d. per lb., which was the price ruling in Germany at the time. That meant that Mr. Henry had intended to pay 4s. 9d., *plus* freight and insurance, and, on top of that, the duty. Mr. Oliver (for Mr. Henry) said that all shipments from Germany were made by agreement at a price fixed on the day of dispatch. The price on the date of the order was 4s. 9d., but it was lower on the day of dispatch. Mr. Gibson agreed that the price had dropped to 4s. at the time the goods arrived, but that was still more than 3s. 1d. or 3s. 2d. He quoted market prices to show that the price at which the goods were invoiced did not represent the value of the goods, because no profit whatever had been allowed the manufacturers. The goods had been detained by the Customs, and, if they had not been, the Customs would have lost about £40 on the two transactions.

### EVIDENCE FOR THE COMMISSIONERS

Mr. O. F. C. Bromfield (secretary, British Chemical and Dyestuffs Traders' Association) gave evidence, on subpoena, as to the price of phenacetin between February and June of this year. In February, he said, the price (including duty) remained fairly steady, between 6s. 4d. and 6s. 6d. per lb. for fair quantities—½ cwt. or 1 cwt. During March it was about 6s. 3d. or 6s. 4d. During April there seemed to be a lot of material on the market, and he believed some comparatively cheap sales were made, which might have been at 6s. Later the price ruled from about 6s. to 6s. 2d., and he believed it is still about that figure. He had information that there had been one or two sales in London at a figure slightly below 6s., but there were unusual circumstances connected with the sales. As to the lowest value, at ship-side, of phenacetin imported into this country, prior to the payment of duties, during the period in question, he said that during February and March the proper price was usually a little below that quoted by the Germans; the French, and possibly the Swiss manufacturers, could beat the Germans. The lowest price at which he had seen the German product quoted during February was 4s. 9d. per lb., but there was one isolated offer from Germany, f.o.b. Hamburg, during April, at 4s. 2½d.; as to the quality of that material he had no evidence. Asked for his opinion as to the quality of the Bayer phenacetin, he said, it was as good as the best. Mr. Oliver, cross-examining, pointed out that the 6s. 4d. and 6s. 6d. included the duty to be paid under the Safeguarding of Industries Act, and 33½ per cent. had to be deducted before it could be compared with the invoice price to the importer. He also referred to letters from the German company, one of which, dated February 5, offered phenacetin in ton lots at 4s. 2d. per lb., while another on a different date quoted 3s. 6d. per lb. for quantities of 300 kilos or over.

Mr. R. J. Edwards (secretary, Bayer Products, Ltd.), who was also subpoenaed, produced invoices and other documents relating to the transactions, and said that the invoices to Bayer Products, Ltd., amounted to £20 more than the invoices to Mr. Henry.

Mr. J. W. Lichman (in charge of the Key Industry Department at the Custom House) said that in the first few months of the year the price of phenacetin at ship-side varied from 4s. to 5s. per lb. He remembered one occasion on which it was below 4s., but the product in that case came from France, and the low price was due to the value of the franc being low. Cross-examined, witness said that the price which should be declared for Customs purposes, according to the law, was the price which an importer would give at the ship's side. Mr. Oliver said that Bayer Products, Ltd., had a contract under which chemicals were invoiced to them at cost price; for months and months they had been declaring their phenacetin value at that cost price, and there had been no proceedings until now. He asked if it were witness's view that it was not sufficient to declare the cost price, even though it was the invoice price. Witness replied that it was not correct to do that, because it was not the price an importer would give at

the ship's side. Mr. Oliver said it was the price which this importer actually did give. It was a matter of opinion as to what "an importer" meant. He asked witness whether he could not understand a man taking the view quite honestly that he was entitled to put down for Customs purposes the invoice price. Witness said he could not say that. Mr. Oliver said that traders could not be blamed for doing the best they could for themselves. It was not to be expected that a man should be anxious to pay a  $33\frac{1}{3}$  per cent. duty on a figure which was more than the actual price he paid for the goods. He also pointed out that the law provided that if, in ascertaining the amount to be paid, a dispute arose as to the value of the goods, the matter should be referred to a referee appointed by the Treasury, who should not be an official of any Government department, and the decision of the referee should be final and conclusive. Therefore, it was not the practice to prosecute perfectly respectable people. Mr. Gibson, in re-examination, said it was the importer himself who must take the matter before a referee, if he wished. He also held that the price to be declared for Customs purposes was the price an importer would pay, including all charges, profits, and everything else.

Mr. H. Kimber (officer of Customs and Excise) produced various documents relating to the goods referred to. This closed the case for the prosecution, and the proceedings were adjourned.

#### CASE FOR THE DEFENCE

When the proceedings were resumed on August 13, Mr. Roland Oliver (for Mr. Henry) addressed the magistrate. Mr. Henry, he said, had been charged with deliberately and fraudulently making a false statement to the Customs authorities. He had given the invoice price of phenacetin imported from Germany, and that invoice price was, in fact, the cost price, allowing the German firm their overhead charges only. It had been said that, in the circumstances of the case, Mr. Henry ought to have made out a return showing some figure in excess of the cost price, in order to include the profit for the German manufacturers. The issue was not merely that he had made a wrong return. What the prosecution had undertaken to say and prove was that he did it falsely. Mr. Oliver submitted that the charge ought never to have been brought against a respectable gentleman such as Mr. Henry, against whose name and honour not a word had been said before. Counsel then dealt with the events leading up to the formation of Bayer Products, Ltd., whose purpose was to market the products of the German company in this country. The agreement, by which goods from the German company were invoiced to the English company at cost price, in consideration of which the German company received a share of the English company's profits, was signed in April, 1923. For months, therefore, returns had been made, based on that invoice price, the English company taking the view that they should declare the invoice price. What other price could they put in? The law said that the invoice was *prima facie* evidence of the value of the goods. That view was accepted by the Customs for months, so far as Mr. Henry knew. Was it to be said that the Customs could not see that this phenacetin from the Bayer company was coming into the country at a lower price than other phenacetin? It was all done in black and white, and the Customs had accepted it without demur. Mr. Henry was entitled to do what he knew the English company had been doing, obviously with the knowledge of the Customs, and it was idle for the Customs to pretend that it was not obvious to them. As to the reasons why Mr. Henry had ordered these goods, counsel said that up to November last the German Government had been refunding to their nationals the duties which were imposed on exports for reparations purposes. It was made known that November 15 was the last day on which the German Government would recognise the contract to do that. Mr. Henry was anxious to order the phenacetin from the German company before November 15. He knew that it could only be ordered by Bayer Products, Ltd., but he had taken the risk of ordering it himself, in his own

name, because he knew that Bayer Products, Ltd., would ratify it, and treat it as a transaction by their agent. In fact, they had done that, because the company were entitled to employ any agent they chose. The order could not have been acted upon if the Bayer Products, Ltd., had not ratified it. Therefore the company were the importers, and not Mr. Henry, because they had ratified his act. It was necessary, however, that the person making the declaration to the Customs should be the person ordering the goods, and that was the reason he had made the declaration. But because he had made that declaration, and had put in the same price as had been put in for months and months by Bayer Products, Ltd., he was charged with fraud. It was a very strong action for the Customs to take, and he (Mr. Oliver) could not understand their action in charging Mr. Henry with fraud under those circumstances. It seemed rather a shame that a gentleman in Mr. Henry's position should be so charged. Counsel asked the magistrate to remember, if it were in his mind to convict, that Mr. Henry, though a director of Bayer Products, Ltd., was merely there to look after the interests of the German company, and had little to do with the English company's affairs. As to the evidence that invoices sent to Mr. Henry were lower than those sent to the English company, counsel said that when Mr. Henry was the importer of the German company's goods (before the English company was formed), those goods were invoiced to him at a price which included all charges, and therefore, when he received the invoices on which the present summonses were based, he was entitled to assume, and did assume, that they included everything. He had no knowledge of the other invoices sent to the English company, and was astonished when they were produced. If something was left out (i.e., export duties), it was probably due to carelessness in making out the invoices in Germany, and Mr. Henry should not be blamed. Counsel asked the magistrate to give close consideration to the facts of the case before a man of Mr. Henry's reputation was convicted in that Court of a charge which affected his honour.

Mr. Henry, in evidence, described himself as a merchant dealing with drugs and fine chemicals. He was previously the representative in Scotland of the Bayer company, but in the early stages of the war he came to London to assist in the management of the business, which was then called the Bayer Co., Ltd. They were the sole importers into the United Kingdom of the products of the Farbenfabriken vorm. Bayer & Co. During the war the Public Trustee had ordered the Bayer Co., Ltd., to be wound up, as an enemy trading concern. After the war, an American concern, named Bayer Incorporated, purchased the trade names from the Public Trustee. There was a good deal of litigation as to who had the right to use the trade names, and this resulted in the agreement already referred to, under which the Bayer company in Germany sold them to a new company, named Bayer Products, Ltd., which was formed in England by Bayer Incorporated, and the new company received goods at cost price. The agreement, said Mr. Henry, was not entered into for the purpose of evading key-industries duties. Referring to the particular transactions on which the summonses were based, he said he certainly took the view, as a business man, that the invoice price was the proper price to declare, and he still thought it was an arguable position. He knew no other basis upon which he could make a return. He had ordered the goods from the German company in his own name because time was pressing, and he wished to get the orders confirmed before November 15. He agreed that he would not have received the goods if the orders had not been accepted by Bayer Products, Ltd., as orders from their agent. He had not the slightest knowledge that the invoices sent to him differed from those sent to Bayer Products, Ltd. It was pointed out by counsel that the export duty was not included in the invoices sent to Mr. Henry, and Mr. Henry said he had been under the impression that it was included. He had not the slightest intention of making a false statement. The goods were actually imported by Bayer Products,

Ltd., and he bought them from that company. Cross-examined, Mr. Henry said he was not aware that the Customs had never been informed that the German company were receiving 50 per cent. of the profits of the English company. It was also suggested to him that, by obtaining the phenacetin from the German company, he was able to undercut the market in this country; but he replied that he had sold at competitive prices, though the prices varied, because the quantities bought by the various buyers varied.

The magistrate said he must convict in this case. In his opinion, Mr. Henry must have known at the time that the price at which these goods came through was not the price at which they would come through to an ordinary person. He believed, however, that Mr. Henry was an honest man. He imposed fines of £50 on each of the two summonses, and costs of £5 5s. in respect of one summons. It was stated that Mr. Henry would appeal. There is another summons against Mr. Henry and Mr. Lionel Cooper, which, it was said, involves the same points as were involved in the summonses already heard against Mr. Henry. Application was made for this to be held over until after Mr. Henry's appeal was heard. After further discussion, the proceedings were adjourned *sine die*.

## Legal Reports

**Injunctions against Passing Off.**—In the Vacation Court, London, on August 13, Mr. Justice Tomlin had before him a motion by J. Goddard & Sons against the Blackpool Co-operative Society, Ltd., to restrain passing off. Mr. Norman Daynes stated that the plaintiffs were the well-known manufacturers of Goddard's Plate Powder and Goddard's Non-mercurial Plate Powder. A Miss Goddard made plate powder on a small scale, and it had been held that she was entitled to do so as long as it was made clear that this was not plaintiffs' powder. That did not justify Miss Goddard's plate powder being supplied when Goddard's powder was asked for: there must be an inquiry as to which powder was required. Mr. Richmond appeared for the defendants, and admitted that plaintiffs were entitled to relief, and desired to put an end to the matter. There would be a perpetual injunction restraining the defendants from supplying powder not of plaintiffs' manufacture in response to a request for Goddard's, without clearly ascertaining what was required, and the defendants would pay the costs. The plaintiffs waived damages. Mr. Richmond said that the defendants consented to this. His Lordship: Then there will be a consent order. A similar order was agreed to in an action by Messrs. Goddard against J. B. Hallmark & Sons, Ltd.

**Dangerous Drugs Act Fines.**—At Glasgow Sheriff Court, on August 6, Mr. Gilbert Dyt, chemist and druggist, Kilmarnock Road, Shawlands, was summoned for having failed to enter or cause to be entered in a register kept for the purpose the purchase of a quantity of "drugs," contrary to the Dangerous Drugs Act. It was explained by an agent that the omission was due to the neglect of an employee. A fine of £10 was imposed.—At Southampton Police Court, recently, Boots, Ltd., were summoned under the same Act for having failed to mark certain prescriptions with the date on which they were dispensed. There were twelve counts in all in respect of two branches (Above Bar Street and East Street), and the respective managers, Mr. E. Smith and Mr. G. P. A. Hunt, Ph.C., were summoned for aiding and abetting. Mr. A. Sugden (Nottingham), who defended, said that it had simply been a clerical error. Steps had been taken by the company to prevent cases of that sort, and circulars had been issued to all branches to prevent such a thing happening. The magistrates imposed a fine of £5, with costs in one case, and costs in the others, a total of £7 4s.

## New Companies and Company News

P.C. means Private Company and R.O. Registered Office.

**JONES' PHARMACY, LTD. (P.C.).**—Capital £300. Objects: To take over the drug business carried on at 218 Ivydale Road, Nunhead, S.E., and to carry on the business of chemists, druggists, drug-store proprietors, etc. The directors are: W. J. Jones and L. W. Abbott. R.O.: 218 Ivydale Road, Nunhead, London, S.E.15.

**DANSO, LTD. (P.C.).**—Capital £5,000. Objects: To acquire all or any rights of manufacture, sale and exploitation in a proprietary article or powder known as "Danso," to manufacture, sell, exploit, advertise and deal in the same; to adopt an agreement with W. G. Barry and W. Henderson, and to carry on the business of chemists, druggists, drysalters, oil and colourmen, etc. The directors are W. G. Barry and W. Henderson. R.O.: 19 Garrick Street, London, W.C.2.

**COSBY HYGIENIC REFILLABLE HAIR BRUSH, LTD. (P.C.).**—Capital £20,000. Objects: To acquire the benefit of certain inventions relating to the manufacture of refillable hair brushes; to adopt an agreement with E. L. H. Cosby and J. W. Conder, and to carry on the business of manufacturers and retailers of, agents for, and dealers in tooth, hair, toilet, sanitary brushes, etc. The directors are: E. L. H. Cosby, D. S. Fraser, and C. L. G. Prioleau. Solicitors: Coe & Robinson, 14 Hart Street, Bloomsbury, London, W.C.1.

**NEUTRON, LTD. (P.C.).**—Capital £500. Objects: To carry on the business of manufacturers of and dealers in mineral ores and other substances used as crystal detectors for wireless receiving sets, particularly the crystal known as "Neutron," chemical compounds, metals and mineral ores, wireless sets, and accessories, etc. The directors are: W. Bennison, F.C.S., Ph.C., 9 York Mansions, Earl's Court, S.W., T. E. de Vries, and T. Hadley, B.Sc. R.O.: Sicilian House, Sicilian Avenue, London, W.C.1.

**TILDESLEY, LTD. (P.C.).**—Capital £1,000. Objects: To carry on the business of chemists, druggists, chemical manufacturers and dealers, drysalters, importers and manufacturers of and dealers in pharmaceutical, medicinal, chemical, industrial and other preparations, oils, paints, pigments and varnishes, manufacturers of and dealers in mineral waters, wines, cordials, liqueurs, soups, broths and other restoratives or food for invalids and convalescents, manufacturers of and dealers in anatomical, orthopaedic, ophthalmic and surgical appliances, soaps, scents, perfumes, brushes, sponges and all kinds of toilet requisites, etc. Director: R. W. Tildesley, 62 Ruby Street, Saltburn-by-the-Sea, chemist and optician.

**DUERDIN & SAINSBURY, LTD.**—Particulars filed pursuant to Section 274 of the Companies (Consolidation) Act. Capital £250,000. Incorporated in Melbourne, Australia, on June 29, 1920, to acquire the business carried on by R. P. Francis, H. G. McRoberts, J. Arbuckle and A. Black, trading as "Duerdin & Sainsbury," and to carry on the business of druggists and manufacturing chemists. Directors: R. P. Francis and H. G. McRoberts, both of 351 Hinders Lane, Melbourne; J. Arbuckle, 20 McKillop Street, Melbourne; and A. Black, Rosslyn Street, Melbourne. The British address is at 61 Broad Street House, 11 Blomfield Street, E.C., where A. T. Butterss is authorised to accept service on behalf of the company.

**THE DISPENSARY (PENANG), LTD.**—At the annual meeting, held recently, Mr. J. G. Brown, presiding, said that the net profit from trading amounted to \$5,036, against a loss in 1922 of \$14,035. Trade conditions were better and competition was keen, while prices had been cut to ensure a continuity of turnover. The capital was reduced from \$65,000 to \$39,000 by cancelling the capital either lost or unrepresented by available assets. The sum of \$500 was voted as directors' fees. Messrs. Brown and Khoo Thay Jin were re-elected directors.

## Fairchild Scholarship

THE examination for the Fairchild Scholarship and Prizes was held, on June 18, at the following five centres:—Belfast (Mr. James Guiler, supervisor); Cardiff (Mr. Albert Hagon, supervisor); Edinburgh (Mr. Peter Boa, supervisor); Manchester (Mr. A. L. Blain, supervisor); London (Mr. A. J. Chater, supervisor). The candidates who complied with all the conditions and sat for the examination this year number forty-four, of whom thirty represent England, eight Wales, five Scotland, and one Ireland.

The papers written by the candidates were assessed by:—Mr. Peter Boa, Ph.C. (practical pharmacy and prescription-reading); Mr. James Grier, M.Sc. (chemistry and physics); Mr. William Kirkby, M.Sc. (business knowledge and botany). The questions were set by:—Mr. James Grier, M.Sc. (chemistry and physics, and practical pharmacy and prescription-reading); Mr. William Kirkby, M.Sc. (business knowledge and botany). The following are the results:—

Mr. Arthur Edmondson, Bolton, Lancs, wins the scholarship with 375 marks out of a possible 500.

Miss Evelyn Smith, Rishton, Blackburn, wins the England prize (£5). Miss Edith English, Dundee, wins the Scotland prize (£5). Mr. Ronald Melville, Cardiff, wins the Wales prize (£5).

The trustees decided not to award the Irish prize this year owing to there being no competition in Ireland.

The result of the examination had to be held over for three or four weeks owing to other scholarships, and when the result of these was published it was found that the first three in the Fairchild Scholarship had also won other scholarships. Mr. Arthur Edmondson had won the Manchester Scholarship, but he decided to take the Fairchild. He will commence his collegiate course in October at the Manchester School of Pharmacy. Mr. Edmondson was registered at Bolton, and apprenticed with Boots, Ltd., at their Knowsley Street branch. Miss

Smith was registered at Rishton, and apprenticed to Mr. J. S. Snell, Accrington. Miss English was registered at Dundee, and apprenticed to Mr. Charles Stephen, 46 Wellgate. Mr. Melville was apprenticed to the executors of J. B. Thomas, 38 Wellfield Road, Cardiff.

### Practical Pharmacy and Prescription-Reading

(Time allowed—One hour and a half)

(1) Give the ingredients and method of preparation, and in the case of those marked \* the strength in active ingredient of acid, sulphuricum aromaticum, \*infusum digitalis, \*linimentum aconiti, \*unguentum plumbi subacetatis, \*unguentum hydrargyri nitratis, pilula colocynthidis composita, \*pilula hydrargyri subchloridi composita.

(2) Starting with ipecacuanha in suitable powder and 90 per cent. alcohol, describe in detail a typical method for the preparation of a liquid extract, explaining the reasons and objects of each stage in the process, but omitting details of the assay process.

(3) Discuss the suitability and advantages, if any, of (a) glycerin, (b) acid, as solvents, particularly with reference to the following preparations:—Infusum rosae acidum, infusum oinononae acidum, extract. oinononae liquidum, tintura sennae composita, tintura kino, acetum scillæ, extract. gossypii liquidum.

(4) Calculate the quantities, and explain how you would deal with the following solution in actual practice:—Atropin sulph., 0.75 per cent.; strychnin. hydroch., 0.6 per cent., mitte 3*i*

Given the total weight and the quantity of active ingredient present in the following, calculate the percentage in each case:—

Lamella cocainæ	3.5 mg. contains 0.0013 gm. cocaine hydroch.
Tabella trinitrini	0.3 gm. contains 0.5 mg. of trinitro-glycerin.
Trochiscus morphinæ	20 gr. contains 1/32 gr. of morphine hydroch.

(5) Translate the following prescription into English:—

Oleum amygdalæ	... ... ... 3 <i>iv.</i>
Mucilaginis acacie	... ... 3 <i>i.</i>
Tincturæ camphoræ compositæ	3 <i>ii.</i>
Tincturæ scillæ	... ... 3 <i>i.</i>
Aqua	... ... ad 3 <i>viii.</i>

Tere oleum cum mucilagine ut fiat emulsio, deinde adde aquam et tincturas. Signa, "Sumat unciam ter in die vel sæpius si tussis increbuerit. Phiala prius concussa."

Give the official titles in full Latin of the following:—Arsenic, calomel, chloroform, oil of cajuput, eucaine lactate.

### Botany (Time allowed—One hour)

(1) How does an underground stem differ from a root? Name some drugs of the Pharmacopœia which are underground stems.

(2) Distinguish between the parts of an embryo—explaining the significance of the cotyledons, plumule and radicle. Illustrate your explanation by means of sketches.

(3) What are catkins? Mention some of the commoner plants on which they are found.

(4) Describe in the fullest detail the flowers of the buttercup and the daisy, and tell what you know about the functions of the various parts of the flowers. What drugs of the British Pharmacopœia belong to the same Natural Order as the daisy?

### Chemistry and Physics (Time allowed—Two hours)

(1) Explain the terms Analysis and Synthesis, and describe how the composition of water may be ascertained by these methods, giving one example of each.

(2) Define Oxidation and Reduction, giving examples of oxidising and reducing agents. Explain with equations what chemical changes take place when chlorine, hydrogen peroxide, hypochlorous acid, nitric acid, and chlorinated lime are each kept in solution.

(3) Nitric oxide has the percentage composition N...46.7. O...53.3. How has this been determined, and what are the facts which indicate that its formula is NO? Describe the physical and chemical properties of this gas.

(4) Describe and explain the conception of motion in physics, illustrating your answer with Newton's three laws of motion. A force F acting on a mass of 5 lb. increases the velocity of the mass in every second by 12 feet per second. What is the momentum produced in one second by F?

(5) Describe three ways of taking the specific gravity of a liquid. Explain the principles which govern floating and sinking bodies, and indicate under what conditions a body will float in equilibrium at any depth.

(6) What chemical reaction occurs, and what volume of gas, under standard conditions, is produced when 9 grams of water (a) are decomposed by sodium, (b) passed as steam over red-hot iron, (c) decomposed by an electric current?

### Business Knowledge (Time allowed—One hour)

(1) A prescription is presented for a dozen pills, but the formula is given in quantities for one pill only: One of the ingredients is ext. nucis vomic. gr. *iv.*, and you naturally suspect that the physician intends this quantity for the twelve pills. The customer wishes to wait while the prescription is dispensed. What would do in such circumstances?

(2) Write an essay of about 500 words on your experience in the making of one, or more, of the galenical preparations of the British Pharmacopœia.

(3) In the management of a pharmacist's business—state what is the difference between the gross profit on the annual turnover and the net profit. What are the items which have to be taken into account in ascertaining the net profit?

(4) What are the precise regulations under which the following articles are to be sold:—Unguentum gallæ cum opio, injectio morphinæ hypodermica, barbitonum, tintura cantharidis, acidum hydrochloricum.



MR. A. EDMONDSON

## Scholarships in Pharmacy

By Herbert Skinner, Ph.C.

(Secretary to the Trustees of the Fairchild Scholarship and Prizes)

THE present year has shown a returning interest in the subject of pharmaceutical scholarships. It may or may not have been the result of the offer of the three scholarships under the Leverhulme scheme, but it is certain that a stimulus was applied at a time when it was needed. The drawback to the old scholarships was that they were made under pre-war conditions and had materially diminished in cash value owing to depreciation. While it should not be the aim of a student to compete for scholarships solely for the pecuniary value, it need not be overlooked that the depreciation which has resulted in money has made it more difficult for students to get the necessary funds than formerly; and the extension of assistance and stimulus now made is no more than commensurate with the changed conditions.

The number entering for the various entrance scholarships was more than double that of last year, but the papers showed that the standard reached was only a little higher than previously. The Bell scholarships have been awarded this year, which is an advance; but at the same time there is shown something lacking in the primary training or the method of expression in a written form. It is curious that the list of successful candidates in the Bell, Fairchild and Leverhulme was almost the same, and a final sorting had to be made in the Fairchild owing to duplication of successes. The number of students who entered for all scholarships could not have exceeded eighty, the discrepancy between the figures being explained by duplicate and even triplicate entries, which produced inflated figures. The number of entrants into pharmacy each year is between 300 and 400; and though this does not enable us to get the figures at present available for entering scholarship competition, it confirms the impression that there are more possible candidates than have taken the trouble to compete.

Why, then, do students in pharmacy fail to avail themselves of the facilities offered for training in their qualification—since all of them must now go through a systematic course? In the first place, it appears that the varicus syllabuses are not encouraging in their clarity. It is difficult to draw up a statement of subjects and scope on which an examination will be made, and the student, on seeing the statement, applies his imagination and conjures up a demand greater than the expectation. It would appear to be an advantage to draw up a systematic course of study whereby the student who desires to make progress in life will be able to pursue a clear course in the direction of the Qualifying examination. It is to the Fairchild Trustees we can possibly look for the necessary clarification towards helping the youngster, since they are untrammelled by the limitations of a public body.

Many teachers object to giving full information of a systemic character in the form of a syllabus, especially in the science subjects; but the text-books, as a rule, go much beyond the standard expected in entrance scholarship examinations. As a consequence of the vagueness in the student mind, we find that few candidates are able through employers or teachers to obtain guidance without wasting time on information beyond the stage of competitive scholarship. These students generally get high marks, and there is a good competition between them for the first place; but with the remainder there is wide margin, and many never reach what would be regarded as a pass standard, while the greater number have been lacking in the incentive to try.

If it is not considered a good plan to set out a systemic course of study in a syllabus, it would be an advantage if a memorandum were drawn up pointing out the best plan to pursue and indicating the necessary books. In the science subjects there are plenty of useful books to serve as a guide, but most of them are beyond the scope needed. In pharmacy there is a dearth of books with which the student is likely to be acquainted, and

in business knowledge it is a matter of great difficulty. There are plenty of good books published on the subject; but if the student started to study them without advice, he would be worse off than if he had left them alone. The Commercial Compendium now being published in the C. & D. will simplify the subjects for reference and give a guide in the terse expression of information; but this does not do away with the need for general guidance.

Scholarships should appeal to all students; the reason they do not is largely a lack of direction, and where there is absence of local or personal contact, the written word can fill an obvious want. The qualification is the culminating point of what should be organised progress. After registration, there should be the necessary training for Part I when the mind is most receptive and enthusiasm greatest; subsequently comes the more thorough training and experience of the pharmacy, including the business side. When approaching the age of twenty-one, the student should strengthen the knowledge gained and apply it in competition for the scholarships; afterwards, as experience has shown, success in qualifying and, later, in business, is a natural reward.

## Recent Patents

Abstracts of specifications of recently-granted patents for inventions. The complete specification (1s. each including postage) of British patents can be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, on quoting the name of the patentee and the number of the patent.

**Extraction of Odoriferous Substances.**—A process for extracting volatile odoriferous substances from oils and fats by treating the latter in a column apparatus with steam in counter current. (H. Bollmann. 218,910.)

**Hyposulphurous Acid.**—A process for producing solutions of hyposulphurous acid consisting in the reduction of a solution of free sulphurous acid by nascent hydrogen electrolytically produced within the solution. (A. Worsley. 218,347.)

**Sodium Manufacture.**—Sodium is separated from a dilute liquid sodium amalgam by using the latter as the anode in the electrolysis of a solution of sodium cyanide in liquid anhydrous ammonia at a temperature of 30° C. (T. Ewan. 218,373.)

**Aeridinium Compounds.**—New oxyacridinium and alkoxyacridinium compounds, exhibiting a powerful bactericidal action combined with low toxicity, are obtained by alkylating, or aralkylating, an oxyacridine, or an alkoxyacridine, in the acridine nitrogen. (Leopold Cassella G.m.b.H. 218,542.)

**Production of Cymene and By-Product.**—A process for the manufacture of *p*-cymene, consisting in heating a molecular mixture of a monocyclic terpene (dipentene) and sulphur under a reflux condenser in the presence of a catalyst. The residue obtained after removal of the *p*-cymene is a resinous mass with a balsamic odour, suitable for use in dermatology. (G. Austerweil and L. Peufaillit. 206,848.)

**Purification of Glycerin.**—A process for the electro-osmotic purification of glycerin by submitting an aqueous solution to the action of an electric current between an anodic diaphragm consisting of linoxyn (obtained by exposing silk or wool fabric impregnated with linseed oil to the action of atmospheric oxygen) and a cathodic diaphragm consisting of closely woven sail cloth. (Elektro-Osmose A.G. 214,576.)

**Inositol Derivatives.**—A process for obtaining methoxy-inositol pentadihydrophosphate for use as a nervine tonic, consisting in evaporating *in vacuo* the serum of *Hevea brasiliensis*, and treating the resulting crystalline mass, consisting of quebrachitol (mono-methylester of laevio-inositol) with phosphoric acid at 130°-150° under reduced pressure. By neutralising this compound with calcium or magnesium bases the corresponding salts may be prepared, which possess properties similar to those of phytin. (G. Bruni. 216,982.)

## Sir Walter Raleigh's Cordial

If the history of pharmacy ever becomes part of any curriculum, interesting examination questions may be set concerning remedies that have been adopted by the compilers of the British Pharmacopœia and its predecessors, with slight alteration, in consequence of their success as proprietary or otherwise unofficial medicines. The latter history of the preparation that entered the London Pharmacopœia of 1721 as *confectio Raleighana* and has gradually dwindled into the *pulvis crete aromaticus* of the British Pharmacopœia, 1914, is fully related in Wootton's "Chronicles of Pharmacy"; but the author of that storehouse of curious facts says little of the events through which the confection reached official status. "No known authentic formula of the cordial exists," he writes; and the Dictionary of National Biography, less cautiously, declares that Raleigh's (or "Ralegh's") own prescription is not extant. If the D.N.B. statement is to be accepted without qualification, the question why so eminent a man allowed no recipe of a cordial by which, as we know, he set great store to remain extant would be more than a little puzzling. The mystery, however, is not quite so profound.

There is a tantalising entry in a manuscript book in the British Museum (Sloane collection) filled, for the most part, with Raleigh's notes on his chemical experiments, and presumably in his handwriting. Including the heading, it occupies fifteen lines, all of which, other than the first, have been crossed out. It may be deciphered, approximately, as follows:—

### OUR GREAT CORDIAL

The tinctures drawne in spirit of wine of bur- | rage floures, | marigold floures | red gillesfloures | rosa solis, of Cardus. | of Angelica, of balme | of margerom floures, | of mint of settwell, of Cardimum. of lignum aloes, of | kermis, of Cubebs, of the tincture of Corall & gold. | Cardimon. The [—] | of the magisterium of corall, | of unicorn, of amber greese, of muske, | of terra siletiae [?], terra [—], terra sigillata of | T [—] & floures[?] |

Another manuscript in the same collection derives considerable authority from the fact that it purports to give Sir Robert Killigrew's method of preparing the cordial, and is in the handwriting of Sir William Killigrew (1606-1695), his eldest son. Sir Robert Killigrew (1579-1633) was, like Raleigh (with whom he was on terms of friendship), an amateur compounder of medical recipes; and we learn from the records of the Overbury case that both of them supplied Sir Thomas Overbury with remedies—Killigrew with some powders and Raleigh with plasters for the spleen. Among the subjects, then, discussed when Raleigh was visited by his friend in the Tower, the composition and possibly the improvement of the cordial may well have found a place. The Killigrew recipe, very clearly written, has at one time been folded in much the same way as legal documents are; on the outside is written: "Sir Walter Rawleigh's greate Cordiall March 19th 1659": the year by our reckoning is, of course, 1660. This is the recipe:—

### SIR WALTER RAWLEIGH'S GREAT CORDIAL, AFTER SIR ROBERT KILLIGREWES WAY

Take Borrage flowers, Rosemary flowers, Mary gold flowers, Redd Gilly flowers, Rosa solis, Elder flowers of each one pottle after they are dried in the shade. Take alsoe of Scordium, Carduas, Angelica, Balme, Mints, Margorome, Settuell, Bettoney of each 4 handfulls after they are dried in the shade. Take alsoe of the kind of Sassafras of virginia, Lignum Aloes of each 4 ounces heaten to powder: Of Kirmes, Cubebees, Cardamum, Seduary of each one ounce, of Safferon halfe an ounce, Juniper berries, Tormentill rootes, round Birthnore rootes of each one ounce, and of Gentian rootes halfe an ounce.

Draw the Tincture or Extract of these with Spirrit of wine in Balneo, & Save all the ingredients after you have taken out the Tinctures & burne them, & putt their Salte into their Tinctures.

Take six ounces of the Extract of all these with their Salts, and putt to the Tincture of Corall 3 ounces, Terra sigillata 4 drams, Pearle prepared 2 ounces, Beaver stone 3 drams Harts horne Calcind' 4 drams, Amber grese 4 drams, Muske 30 : graines, Sugar Candy one pound & halfe ground

very fine & searched through a fine searce; Then the muske & Amber must be ground & by Little & Little mingled with it, the more you Grinde the Amber the better. Then putt to the sugar Candy all the Dry materialls before directed & make all as fine as possibley you can; Then vpon a greate Hollow grinding stono mingle the Tinctures & dry things together, (which must be done by a strong man vsed to Laboure in that kind) & whilo it is grinding, putt of the sirrope of Lemmons & sirrope of Redd Roses equal parts into it, els it will be so dry, that it will nether grind nor mingle.

### How to make the Tincture off Corall for this Cordiall

Take 8 ounces of Corall & putt it unbeaten into a Calsineing putt vulated & Lett it stand 24 hours in a Calsineing or Glasse furnace, till the Corall bee as white as Snow. Then putt it into 3 quarts of distilled vinegar in a Long glasse with a narrow mouth, & with another smale glasse or viole putt into the mouth of it the body vpwards to saue the vineger from wasting on this manner & sett it in a sand furnace soe as the Sand may bee as high as the vinegar; Lett it boyle without intermission 24: hours by wh: time the vineger will become redd. See then, when tis Coole, poure off the vineger into a glasse basin, or a Bell glasse, & vapoure away all the vineger in Balneo, & gather the Corall together being perfect dry for your vse. You may strike downe your Pearle with oyle of Vitreoll & oyle of Sulphure Equal parts, which is Counted the best way to preparo the pearl.

Buit Sr. Roberte Killigrew did vse to prepare his pearl by Juyce of Lemmons.

W: K:

### Directions to vse Sir Walter Rawleigh's greate Cordiall

The Quantity of a greate pease is a doze for Sucking Children. The Quantity of the Kirnell of a Filberte is the ordinary doze for men & women. Butt if in a fitt of Extremity, you may giue double or Treble as much. you may take it of knifes pointe, or els dossolue it in a spoonfull of Liquore hott or Cold what Liquore you please, & wash it downe with 2 or 3 spoonfulls of the same Liquore. It is vsually taken at goeing into bedd. But it may bee taken at any time when other Cordialls are vsed.

It is excellently good for women to take assoone as they are deliuerned, imediately as they Lye downe.

It will drue all venome from the harte, if taken in time after poyson.

If old people haue fainting fits by the decay off nature, this will doe greate Cures that way. Alwayes taken as is aforesaide.

Finis.

In the middle of the section containing the formula for tincture of coral there is a drawing of a stoppered flask.

### LE FEBVRE'S RECIPE

A few weeks after the date of this document the restoration of Charles II took place; and the King professed so lively an interest in the cordial that his apothecary, N. le Febvre, was instructed to give attention to the best method of preparing it. His "Discours sur le Grand Cordial . . ." appeared in 1665; and a translation into English by Peter Belon, "Student in Chymistry," was published, if the evidence of the title-page is to be accepted, in the previous year. The recipe of le Febvre is given in Latin:—

RECIPE Rasura Cornu Cervi libram unam; Carnis Viperarum cum Cordibus & Hepaticis uncias sex; Florum Boraginis, Buglossæ, Roris-marinæ, Calendulæ, Vetonice Coronariae rubrae, Roris Solis, Rosarum rubrarum, & Sambuci, singulorum libram semissem; Herbarum Scordii, Cardui benedicti, Melissæ, Dictamni Cretici, Menthae, Majoranae, Botonicae, singularum manipulos duodecim; Granorum Kermes recenter in rob redactorum, Cubebarum, Cardamomi majoris, Baccarum Juniperi, Maceris, Nucis myristicæ, Caryopifyllorum, Croci, singularum uncias duas; Cinnamomi acutissimi, corticis ligni Sassafras, flavedinis malorum Citriorum & Aurantiorum, singularum uncias tres; Lignorum Aloes & Sassafras uniuersusque uncias sex; Radicum Angelicae, Valeriana, Carlinæ Fraxinellæ seu Dictamni albi, Serpentariae Virginianæ, Zedoariae, Tormentillæ, Bistortæ, Aristolochiae longæ, rotunda & cavæ, Gentianæ & Imperatoria, singularum unciam unam & semissem. Omnia incisa & grosso modo contusa in vase idoneo posita cum Spiritu Vini rectificato extrahatur secundum Arthem. Tinctura filtrate in extractum mediante, in Maria balneo, distillatione evaporentur. Magno expressum comburatur; Cineres reverberati per aquam elixiventur, unde Sal purum lego Artis paretur, quod Extracto misceatur. His ita peractis, huic Extracto addite, ut Artis est, Pulverem sequentem cæteraque ingredientia. Recipe Lapidum Bezoardicorum orientalium

& occidentalium verorum uniuscujusque unciam semissem, Magisterii solubilis Perlarum orientalium uncias duas, Magisterii solubilis Corallorum rubrorum uncias tres; Boli orientalis, Terra sigillata vera, Unicornu mineralis, Cornu Cervi Philosophice preparati, & Cornu Cervi calcinati, singulorum unciam unam; Ambra grisea electissima in Essentiam redactae unciam unam; Moschi orientalis optimi essentiate drachmam unam & semissem; Croci Solis cum tinctura Antimonii Basilii Valentini parati drachmas duas; Sacchari candisati albi subtilissime pulverisati libras duas. Ex his omnibus mixtis & ex Arte unitis fiat Confectio vere Regia, quæ ad usum reservetur in pyxidibus apprise clausis.

It appears from le Febvre's complacent preface that he had "the counsel and approbation of Sir Kenelm Digby, and Sir Alexander Fraiser his Majesty's chief Physician" in his experiments. His main additions were the flesh, heart and liver of vipers ("though the first prescription doth not mention them"), dittany of Crete, fraxinella, cloves, cinnamon, lemon peel, orange peel, gold, "the Mineral Unicorn," and "the powder of Harts-horn rasp'd without any other preparation." The dose ranged from six grains to a drachm. The source of his "first prescription" was not disclosed, but it is possible that he had access to a copy of the Killigrew recipe. The publication of le Febvre's book, or the force of circumstances, appears to have given the cordial a quasi-official standing, as we find it recommended in "Observations on the Gout," by George Cheyne, F.R.S., M.D., a treatise dated 1720.

## Births

Notices for insertion in this column must be properly authenticated.

**BENNETT.**—At 45 Orford Street, Ipswich, on August 3, the wife of E. H. G. Bennett, M.P.S., Norwich Road, of a son.

**BERENS.**—At Innesfree, Chipstead, Surrey, on August 10, the wife of Herbert A. Berens, B.A., F.C.S. (the Old Strand Chemical Co., Ltd., Ely Place, London, E.C.1), of a daughter.

**SKUES.**—At 44 The Gallop, Sutton, Surrey, on August 7, the wife of Ernest Skues, M.P.S. (Barkers, chemists, London, S.W.), of a daughter.

## Marriages

**BARRITT—ALLEN.**—At St. Saviour's Church, Birmingham, on July 26, by the Rev. Douglas Neison, Harry Arnold Barritt, only son of Mr. and the late Mrs. H. P. Barritt, Ecclesall, Sheffield, to Mary Louisa Allen, M.P.S., only child of Mr. and Mrs. W. E. Allen, Birmingham.

**RADLEY—SOUTHALL.**—At the Friends' Meeting House, Bewdley, on August 11, Philip Radley, Bristol, to Agnes Christine, daughter of Mr. Wilfred Southall, Ph.C. (Southall Bros. & Barclay, Ltd.), Carpenter Road, Edgbaston.

### Golden Wedding

**GOWER—THOMPSON.**—At Christ Church, Battersea, London, S.W., on August 13, 1874, by the Rev. J. H. Townsend, Alfred John Gower, chemist and druggist, to Rosa Caroline Thompson, both of Tonbridge.

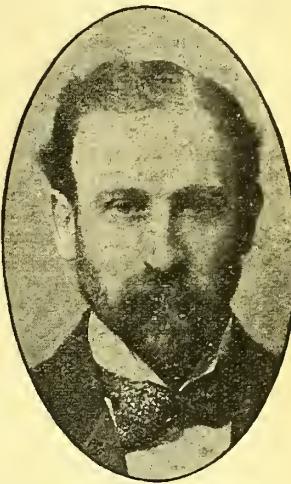
## Deaths

**POUCHER.**—At "Linksvview," Longdown Lane, Epsom Downs, on August 7, Hilda, the wife of Mr. W. A. Poucher, Ph.C., a director of R. F. White & Co., Ltd., manufacturing chemists, 34 Victoria Street, London, S.W.1.

**SARL.**—At 27 Clive Avenue, Hastings, on August 9, after a painful illness, Mr. Horace W. Sarl, aged sixty-four. Mr. Sarl joined the travelling service staff of Vinolia Co., Ltd., in February 1904, and for some years acted as

representative for Sussex and Kent. Of a kindly and cheerful disposition, he was highly respected by all who knew him.

**HELBING.**—At 7 Kollerweg, Berne, on August 4, after a severe illness, Mr. Heinrich B. Helbing, F.C.S., aged sixty-three. Mr. Helbing was a native of Darmstadt, and came to London about forty years ago, acting for a few years as chief dispenser at the German Hospital, Dalston, subsequently starting in practice as an analytical chemist at 81 Queen Victoria Street, E.C.4. In this he was joined by Dr. Francis W. Passmore, in 1892, and together they built up a large and special analytical practice, which is now carried on under the style of Passmore & Thorns, by Mr. W. H. Thorns (for twenty-seven years assistant to the late Dr. F. W. Passmore) and Mr. W. A. Passmore. During the early part of his career in London Mr. Helbing took an active share in pharmaceutical affairs, and was a frequent contributor to THE CHEMIST AND DRUGGIST and the proceedings of the Pharmaceutical Conference. He was also largely interested in the introduction of German pharmaceutical products, and for some years published the "Pharmacological Record." For reasons of health, Mr. Helbing and his family removed to Wiesbaden some years before the war, and in November 1914, in common with other British subjects in Germany, he was arrested and interned in Rohleben, being one of the contingent that had to experience the amenities of sojourn in the "Auswandererbahnhof," which greatly aggravated his illness and was largely instrumental in securing his release some weeks later. He leaves a widow and daughter.



MR. H. B. HELBING, F.C.S.

## Personalities

**MR. FRANCIS NEWBERY** (F. Newbery & Sons, Ltd.) has returned to London from a prolonged tour in Sweden and the Baltic.

**MR. EDGAR W. KIDDLE** and **MR. ARTHUR F. WOODWARD** have joined the board of directors of Samuel Lambert & Co., Ltd., 10 Great St. Helens, London, E.C.3.

**MAJOR J. H. B. WIGGINTON**, M.C., a director of The Erasmic Co., Ltd., Warrington, of the Cie Erasmic Paris, and of Joseph Crosfield & Sons, Ltd., has been awarded the Territorial Decoration by his Majesty the King.

As chairman of the Exeter and Devon Cancer Relief Appeal Fund, Mr. Philip F. Rowsell, Mayor of Exeter and Vice-President of the Pharmaceutical Society, made strong appeals, on August 6, to audiences at the Empire, Hippodrome and Theatre Royal.

**MR. T. WILSON**, chemist and druggist (for many years in business in Nottingham), and Mrs. Wilson celebrated their golden wedding on July 31. Among the presents they received was a silver-gilt rose-bowl from the Board of Guardians, of which body Mr. Wilson has been a member for several years.

**MR. KINGSLEY MELLING**, Longfellow Avenue, Bolton, the winner of the first scholarship of £60 and a gold medal offered by Lord Leverhulme, served his apprenticeship to Mr. F. Brindle, a Bolton pharmaceutical chemist, who is the brother of Mr. H. Brindle, B.Sc., Ph.C., principal of the Manchester School of Pharmacy.

## Trade Notes

VINT'S MENTHOL is advertised in this number by Evans Sons Lescher & Webb, Ltd., as well as Vintints, a variety tinted in different colours.

BUSINESS TRAINING COURSE.—The Retail Pharmacists' Union, 19 Tavistock Square, London, W.C.1, send us a booklet giving a synopsis of the business training course which the Union is advertising in this issue. The course is a postal one and costs five guineas, but the synopsis can be obtained free on application.

STIX-IT.—A. S. Wright & Sons, Stapenhill Works, Burton-on-Trent, send us samples of Stix-it, an adhesive which has been perfected after considerable research. Stix-it is packed in collapsible metal tubes retailing at 1d., 3d., and 6d., and is an excellent adhesive to sell for general purposes in the household.

POTTER & MOORE'S EXHIBIT.—We referred to the exhibits of W. J. Bush, Ltd., and Potter & Moore at the British Empire Exhibition in our issue of August 2, and last week the stands were made additionally attractive by reason of the institution of Lavender Week. On the stall were many bunches of freshly gathered lavender, and the corner was redolent of lavender, so that visitors could not fail to notice the festival.



Photo]

POTTER &amp; MOORE'S EXHIBIT AT WEMBLEY

EDUCATIONAL INSTITUTIONS.—The following is a list of the educational institutions advertising in this issue:—

Bath and West of England College of Chemistry and Pharmacy.

Birmingham and Midland College of Chemistry, Pharmacy and Botany.

Birmingham Municipal Technical School.

Brighton Technical College.

British Optical Institute, Ltd.

Cardiff Technical College.

Charing Cross Hospital Medical School.

Chelsea Polytechnic.

City of London College.

Exeter School of Pharmacy.

Glasgow Royal Technical College.

Gordon Hall School of Pharmacy for Women.

Heriot-Watt College.

Leeds Technical School.

Leicester City Technical School.

Liverpool School of Pharmacy.

London College of Chemistry, Pharmacy, and Botany.

London Hospital Medical College and Dental School.

Manchester Municipal College of Technology.

Manchester School of Pharmacy.

National Association of Opticians.

Norwood Technical Institute.

Robert Gordon's College.  
 Royal Dental Hospital of London School of Dental Surgery.  
 Royal Veterinary College.  
 Salford Technical College.  
 School of Optics, Ltd.  
 Scurr, C. A.  
 South of England School of Pharmacy.  
 Spectaclemakers' Company.  
 Sunderland Technical College.  
 Swansea Municipal Technical College.  
 University College Hospital Dental School.  
 University of Bristol.  
 University of Manchester School of Pharmacy.  
 West Ham Municipal College.  
 Westminster College of Pharmacy.

## Trade-marks Applied for

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1924, p. 289.

(From "The Trade-marks Journal," July 30, 1924.)  
 "OPEX"; for an internal medicine preparatory for radiographic treatment (3). By Watson & Sons (Electro-Medical), Ltd., 43 Parker Street, Kingsway, London, W.C.2. 447,590.  
 "SANIL"; for disinfectants (2). By F. L. Simons, 3 Frederick Street, Edinburgh. 448,162.  
 "PORLY"; for medicated powders and liquids (3). By A. Baird, 105 Boulevard Magenta, Paris. 448,618.  
 "SPRINT"; for medicinal chemicals (3). By The D. & S. Laboratories, 19 Shandwick Place, Edinburgh. 449,734.  
 "OXOID"; for medicinal chemicals (3), and for food substances (42). By Oxo, Ltd., Thames House, Queen Street Place, London, E.C.4. 449,751/752. (Associated).  
 "PEDESAL"; for medicinal chemicals (3). By Budden & Co., Ltd., 53 Renshaw Street, Liverpool. 449,764.  
 "PSICAIN"; for medicinal chemicals (3). By E. Merck, Frankfurterstrasse 20, Darmstadt, Germany. 449,793.  
 "ENERGOL"; for a food for dogs and puppies (42). By A. F. Sherley & Co., Ltd., 46 Borough High Street, London, S.E.1. 448,087.  
 "BEAUTILASS"; for perfumery, etc. (48). By Kate M. Downes, 3/4 Water Lane, Great Tower Street, London, E.C.3. 447,182.  
 "MASTIFF" under picture of same; for toilet articles (48). By E. Cook & Co., Ltd., Bow, London, E.3. 447,967. (Associated).

## Information Department

### INFORMATION WANTED

S/149. "Adapt" elastic bandages	B/138. Knickerbocker Shower Bath Brushes (London supply)
S/160. Gadel (makers)	G/98. "Soapless" marble-cleaning preparation
S/138. Le Grip chamois foot protectors	H/149. Tracey's gas eliminating tables
B/138. Fuller Brushes (London supply)	B/128. Zig-zag toilet paper
B/98. Pynerzone fluid and blocks	

### INFORMATION SUPPLIED

Arcanol. B/118	San-Sat. A/68
Bacilllex. A/108	"Silwyr" hair brushes. C/48
Garstin's gout pills. R/128	Surginol. B/128
Iodine medol. H/78	Truman's nursery powder. A/68
Jackel's hair cream. L/88	Ung thiomel. A/78
Kurmange. R/128	Uralsol. C/128
Mormitt. E/98	Venus hair brushes. C/48
Pazo ointment. H/128	Wessler tooth brushes. L/88
Pepesencia. K/128	
Salicylosol. H/108	

## Observations and Reflections

By Xrayser II.

### The Jealousy of the Pharmacist

displayed in the objection to the title "Bachelor of Pharmacy in the Faculty of Medicine" is unworthy of a great profession. The "dispensing chemist" who is so injuriously spoken of by Mr. Graham Little has succeeded to one of the former functions of the physician, the preparation of medicines, and is as well entitled to academic distinction as those with whom he collaborates in the healing art. I see no reason, indeed, why "Bachelor of Pharmacy" should not be regarded as a science degree since pharmacy is a science as well as an art; but it is more appropriately associated with medicine, and I suppose our "sweat enemy" the "professional" chemist would object as strongly as the physician to our being admitted to fellowship with him. Apparently nobody loves us. Even those who have climbed by us kick away the ladder that raised them. I only wonder that a doctor should condescend to regard us as competitors with him.

### The Draft Order in Council

has certainly got rid of some "redundant phraseology," but it retains a good deal. What, for instance, is the use of the phrase, "as an ingredient thereof," early in the new Order? If the poison is contained in the preparation, surely it is an ingredient thereof, and there is no need to say so. And, again, in the next paragraph, the phrase, "in the case of any preparation," etc., is redundant. Why not say, "Provided that it shall be sufficient if any preparation of the British Pharmacopeia," etc., "is described on the label by its name," etc.? I am strongly of opinion that any help the Order may give to the Pharmaceutical Society is *not* worth the inconvenience it will cause to the individual chemist, to whom it will, as you say, be an unmitigated nuisance.

### The Invasion

of other trades by the chemist is no remedy for the invasion of his trade by them. I have run a business in which grocery was a prominent feature, and nowhere have I known grocers worse opponents of the chemist than they were in that neighbourhood. The more we "go into the grocery, hardware, etc.," the readier the men who carry on these businesses will be to retaliate. I remember, when the chemist to whom I was apprenticed in the 'sixties of last century began to sell packed teas, a leading grocer in the same street threatened reprisals; and I have very little doubt that the now common custom of grocers to deal in things we regard as belonging of right to our trade is due in great measure to the fact that a good deal of our trade trenches upon theirs. I have, in fact, been told by grocers that their taking up of the "patent" trade was a case of "reprisals." This may or may not have been true in any particular instance, but, speaking generally, it is true enough.

### Mr. Molyneux

admits that this "only remedy" is impracticable, and asks us to suggest a "real" one. I am afraid it is impossible to prescribe anything that is a specific in this case. But to do as your correspondent advises is to endanger, if not actually to give away, the one advantage we have. It is the error the Scots fell into at Dunbar, when they left their impregnable position on the hill to engage the English in the plain. I don't know exactly how it may be with R.D.'s in Ireland, but English pharmacists cannot endanger the distinctive character of our business without ultimate loss. The individual pharmacist cannot compete with other tradesmen on equal terms except on their ground, and that virtually means the abandonment of his own.

### The Omission of Pyridine

from methylated spirit when prescribed by a doctor would not, of course, meet the objection to its presence in spirit burnt in lamps, nor would the use of cautionary labels by chemists prevent the use "on the human body" of pyridinised spirit obtained through another channel. That, it may be said, is nothing to the chemist; but since a good many chemists do not sell methylated spirit, it means a good deal to the public. There is nothing for it but to keep pegging away until the authorities responsible for this adulteration rescind the order. This is the more necessary since pyridine is said to be incompatible with some of the ingredients in furniture polishes.

### Three Whole Pages

of your last week's issue were occupied by local reports of Insurance matters, and besides these there were other references to the same department of our business. They are not easy nor attractive reading, but to the panel chemist they are of the greatest importance. I confess that to me they are like "obstacles" in a race—presenting, as they do, problems difficult of solution, which nevertheless a commentator on current events cannot ignore. What strikes me most to-day is their complexity and the minuteness of the details with which most of them are concerned. The panel chemist's lot is not a happy one, and he must pray that the Commission on Insurance work now sitting will succeed in simplifying matters when our present contract expires. I trust these reports of yours are brought under the Commissioners' notice. The service is made infinitely more exacting than it need be by all this apparatus of committees and bureaux, and of regulations which serve only the purpose of bunkers on golf-links, or, to revert to my former metaphor, of obstacles in a race.

### Mr. C. Denby Day

makes several good points in his criticism of the Proprietary Articles Trade Association (*C. & D.*, August 2, p. 208), and I agree that readjustment in more respects than one is desirable; but I do not follow him in wishing to see subscription confined to proprietors; indeed, that proposal seems to me quite impracticable, and of doubtful advantage even if it were practicable. Mr. Day speaks as if proprietor, wholesaler and retailer were three antagonistic forces, and of their junction in this Association as a kind of "heaven and hell amalgamation society," but it is not so. Their interest in patents is at bottom identical; they all aim at stability of prices; and it is difficult to see how this could be better effected than by a joint effort, or how a joint effort could be so effectively made as by junction in an association to which all subscribe. It is money that makes the mare to go, and we generally take more interest in what we pay for than in what costs us nothing. Not to speak of the impossibility of carrying on the work of the P.A.T.A. on the subscriptions of proprietors only, how, except as subscribers, could we claim any share in the direction of the Association? And was it not started by a retailer in the interest of retailers, and do we not still reap benefits from it equal to those reaped by proprietors and wholesalers? I have criticised the P.A.T.A. pretty freely, and there is much in it that I don't like—indeed, I am not enamoured of the principle on which it is based—but its practical advantages cannot be denied, and Mr. Day's scheme of "readjustment" would endanger their continuance.

### Laburnum and Monkswood

ought to be added to your tale of plants that should be kept out of gardens frequented by young children. The laburnum, it may be thought, flowers at a height beyond the reach of children, but as a matter of fact more cases of poisoning by its fruit occur than can be charged to any other garden plant I can think of, and monkshood is as likely to be the occasion of fatal accidents as any of those you name.

*Fine products from the celebrated laboratories of  
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## THE CHEMIST AND DRUGGIST EDUCATIONAL NUMBERS

THE information contained in these numbers is so complete and so comprehensive that it has led to numerous enquiries throughout the year for spare copies. Consequently we have made special arrangements to have sufficient copies of the issue of

**AUGUST 16, 1924**

printed off to meet the demand of students, assistants or qualified pharmacists who may require it. Copies are supplied to anyone interested by communicating with

**The Publisher, THE CHEMIST AND DRUGGIST**  
42 CANNON STREET - - - LONDON, E.C.4

## Editorial Articles

### Study and Success

OUR Educational Number emphasises each year the increase in facilities which are offered to those who wish to acquire some form of "qualification," usually in order to make certain some means of livelihood. Yet the possession of a certificate of qualification, while it confers the "right" to practise, is not by itself sufficient to ensure success in life. Though the student is not aware of the fact, much depends upon his attitude towards acquiring knowledge, whether merely just to get a qualification, or whether he wishes to acquire a real understanding of his calling. It is not merely the difference between "cramming" and "studying," but the difference between "memorising" and "understanding." The trained mind is what distinguishes the professional man from the manual labourer; the latter often possesses intellect of a high quality, but he *cannot think things* out for himself. The "memoriser" is thus associating himself with the routine worker, living upon the inheritance provided by intellectuals of former days, and subject to competition more or less severe according to stringency of curricula, or cost of qualifying, for the limit of numbers of qualified persons is ultimately set by the number who consider it worth while as a paying proposition. It is appropriate therefore that the drones in each profession are those who have entered therein solely with the object of gain, because they have added nothing to the knowledge they have bought. They can only work according to schedule, and are paid schedule rates. Contrast the advantage of the "thinker" who starts where his predecessors left off. In the first place his ideas are never fixed. The reason why and not the bare fact forms a groundwork for comparison and deduction of new truths. These may have to be submitted to experimental tests, so that he is ever a "research" worker in the true sense of the word; and however little is added to the accumulated knowledge of generations, he has succeeded because so far as he is concerned the world is better off than when he came into it. Continuous exercise of this prerogative of thinking and sensible experimentation results in doing things, not waiting to do them. Opportunities for advancement are made while the majority are waiting for something to turn up. Perhaps pharmacy more than any other calling is beset with tendencies to get into a groove, the Qualifying examinations themselves often calling for memory work rather than problems requiring a little introspection. For example, it is so easy to learn set proportions of water, oil, and gum, to start off on emulsion, or look up the formulas with directions *secundum artem* in a standard work. But what is to happen when the customer complains that his special borax, olive oil and water hairwash is different from what he had previously, because "it won't shake up"? If oil is too good (or free from acid) it will not make a soap, the necessary precedent to emulsification. One pharmacist will return the olive oil to his wholesaler as "bad," the other will "sense" the difficulty and prove it by adding a little oleic acid. Thus true knowledge not only prevents a pharmacist from making a fool of himself, but saves him material, time, and a "customer." The object of such an illustration is to emphasise how important it is for the student to feel a "call" to his profession. Unless he is interested therein and is prepared to work hard at his studies he is sadly handicapped. Certificates of qualification are by no means certificates of competence; they often only indicate a standard of education.

The holder finds he has still to acquire experience, it may be professional, technical or commercial, before he is able to obtain lucrative employment, or, what is even more difficult, set up on his own account. Superficial attainments may succeed until shown up by a better man. The latter finds it necessary to keep abreast of the times, only possible by reading his professional or trade journal. Though the student of to-day can justly complain that his field of studies are ever enlarging, he is compensated by more facilities for attaining it and greater help in separating the germ of truth from the chaff of mere opinions. The Corner for Students, our quarterly Progress of Pharmacy, the recent series of botanical articles, the *C. & D. Commercial Compendium*, the *C. & D. Diary* (for pharmacy law) are aids wherein specialists summarise information that is otherwise inaccessible. Pharmacy is therefore the main theme of our Educational Number. It is for those entering therein, about to try for its Qualifying examinations, or proceed to higher branches of medicine or science. All have the consolation of knowing that their pharmaceutical training will be equally valuable, no matter whether they ultimately achieve academic, professional, technical, or business distinction.

#### The Finance Act, 1924

THE Finance Act for the year having now received the Royal Assent, we are able to take note of the changes which the Bill has undergone since its introduction. Important among these, for the policy which it reflects rather than because of its fiscal consequence, is the extension by clauses 6 and 7 of exemption from entertainments duty. In future exemption is to be allowed to entertainments, the net proceeds of which go to charities, provided that the whole of the expenses of the entertainment do not exceed fifty per cent. (instead of thirty, as under the Act now in force) of the receipts. This, of course, is in addition to the total exemption from the duty of payments for admission not exceeding sixpence. The reflection is suggested of what the older school of fiscal purists would have thought of a policy which seems to aim at whittling away a purely luxury tax. The concession granted to black beer by clause 11 stands on a wholly different footing. This is recognised as a medicinal preparation, and the application to it of the war taxation imposed on ordinary beer always struck us as an indefensible anomaly. The Chancellor has now given some recognition of the true position by conceding a rebate of £5 for every thirty-six gallons of black beer of a specific gravity of 1.220 deg. This, it may be said, is allowed not only to black beer, properly so-called, but also to mum-, spruce, Berlin white beer, and similar preparations of the prescribed gravity. The proposed changes in the law as to methylated spirit continue in clause 13; and it is to be hoped that the wide powers to make regulations as to the manufacture and distribution of the spirits which are entrusted to the Commissioners of Customs and Excise will be used to meet the objections which we have urged to the unsuitability of pyridine denatured spirits for some medicinal purposes. Clauses 21 and 22 of the Act provide for an increase in the allowance from income-tax from £45 to £60, which may be claimed in respect of a person employed to look after widowers' or widows' children; while the next clause gives exemption from income-tax to the profits or gains made by an agricultural society on a show or exhibition. Only one further innovation in income-tax law deserves to be noticed because of its general and growing importance. Where, after November 30, any

company draws a cheque or warrant for a dividend or for interest, it is required to annex to the cheque or warrant a statement, showing (a) the gross amount which, after deduction of the income-tax appropriate thereto, corresponds to the net amount actually paid; and (b) the rate and the amount of income-tax appropriate to such gross amount; and (c) the net amount actually paid. As to this, we will only say that if its effect is, as is not impossible, to make income-tax payers better realise the weight of the burden they have to bear, its introduction into the Bill should be amply justified, as there seems little hope of getting the tax reduced until an informed feeling of hostility to its injustice takes the place of the present sullen, apathetic grumbling. The new clause 35 of the Act may, we suppose, be taken as an illustration in a minor particular of the current housing policy. Under the Stamp Act, 1891, on the letting of a house for any definite term not exceeding a year, the stamp duty is only a penny, where the rent does not exceed £10, the next higher rate being 2s. 6d. The Act provides that the lower rate shall apply to houses up to £40 per annum, instead of £10. Having regard to the difficult position of our national finances, we are naturally inclined to look indulgently on fiscal heresies, and fix our attention rather upon the concessions which the Chancellor condescends to allow. It is to be hoped, however, that this feeling will not induce him to overlook in his next budget the need for bringing the country back to an appreciation of sound economic principles. The lead is with him.

#### Linseed Oil Outlook

THE course of the linseed oil market has been the subject of more general interest during the past few weeks and decidedly stronger conditions obtained, this being partly due to a resumption of American buying from the Hull mills, chiefly for prompt shipment. This had not been altogether unexpected, in view of the continued active American consumption over the summer months. In our issue of May 3 last, commenting on the market prospects of linseed oil, we stated that the outlet in America during the summer months would probably again be very large, and domestic crushers would doubtless have to depend chiefly on imports of Argentine seed, as the supply of domestic seed was exhausted. This forecast has certainly been fully borne out by recent developments. Apart from this, the most important factor, in the situation in linseed oil and the seed product, is that this season's exportable surpluses of the latter from the River Plate and India have already been whittled down to comparatively small dimensions, having been early this month estimated at 267,000 tons and 114,000 tons respectively. This would therefore represent, from the two main sources of supply, a total exportable surplus of roughly 380,000 tons, the shipments from which, to be spread over a period of about five months, would naturally emphasise that supplies will be again very light until the next Argentine crop. The above exportable surplus compares, it is true, with about 275,000 tons at the same period last year, but the fact may be recalled that over the closing months of 1922 and well into the earlier part of this year, crushers were confronted with an acute scarcity of seed, which caused their operations to be curtailed. With a comparatively good domestic crop this year, American crushers' takings from the River Plate will doubtless slacken off considerably and possibly be suspended over a certain period. On the other hand, there is no overlooking the fact that considerably larger quantities are needed this season by Continental crushers, apart from

the large supplies already taken by the United States. The supplies diverted from sources of production to Continental ports have been, indeed, so much larger this year, that the total shipped to home ports during the first half of 1924 only amounted to 217,253 tons, compared with 231,819 tons for the same period of 1923. As we have previously pointed out, the absorbing capacity of America has been so much greater within the last few years, that it has had a most important bearing on the state of the market, both in seed and oil. There is no doubt also that Continental seed-crushers are making strenuous efforts to regain their pre-war activity; and, given a definite settlement of the problem of German reparations and the establishment of less onerous rates of exchange, the Continental takings of seed will probably in time be fully equal to the pre-war period, and lead to a resumption of active competition in the export markets for linseed oil. Prior to the war, North America was occasionally able to ship some seed to this side, but it is a fact that the amount now produced in the States is relatively small compared with the extraordinary expansion of domestic consumption. It is now clear that, in spite of the enormously increased production of seed in the River Plate and the maintenance of good crops in India, the total world's resources of the premier oilseed are still barely sufficient to keep pace with current enhanced requirements. Amidst phenomenal prosperity, American consumption of linseed oil for decorating and linoleum manufacturing purposes has undoubtedly undergone a considerable expansion; and there is no indication of any material check to the outlet in that direction. The tabulated quotations we give below indicate the sharp changes which have taken place from the height of the stringency which prevailed until towards the end of February this year:—

London prices (per ton)	Feb. 20	May 1	Aug. 7
Linseed oil spot naked ex mill ..	£ 54 0 0	£ 37 5 0	£ 42 10 0
Ditto. " Sept.-Dec. ..	37 15 0	36 0 0	41 5 0
Linseed cake ex mills ..	12 15 0	10 15 0	14 0 0
Calcutta seed, afloat ..	22 10 0	20 0 0	22 17 6
River Plate seed, afloat ..	19 2 6	17 10 0	20 17 6

It will be seen that prices for seed have risen beyond the figures ruling on February 20 last, so that the appreciation from the lowest noted over the spring period has been proportionately greater than in the case of linseed oil. From the extreme lowest figure touched for spot oil of £37 in April, the price recently spurted to £43 per ton, which compares with £55, the exceptionally inflated figure secured incidental to the squeeze experienced in February. An indication of the genuine state of the market is that the quotation for September-December contracts, which on February 20 stood at £37 15s., rose this month to well over £41. A very striking feature which has helped crushers in strengthening their margin of profit is the considerably increased price secured of late for linseed cake up to about £14 per ton, which shows a recovery of about £3 from the lowest point seen this year, and also a notable advance over the value current in February. The much improved demand for this by-product has induced crushers to buy seed more freely. The recent sharp rise in the Argentine was to some extent attributed to the covering of a bear position there. Active speculation doubtless contributed its part to buoyant markets, while seed has been passing into strong hands. The Calcutta market has been very strong on local speculation, but the tone latterly has been a little easier, both in seed and linseed oil. The general outlook, nevertheless, is viewed in an optimistic light.

## Prescription Problem

The Editor will be glad of the loan of original prescriptions suitable for this column, together with the solution of the difficulty.

THE number of replies received in answer to the prescription problem in our issue of May 24, p. 723, was well up to the average. In the majority of cases the component parts of the prescriptions were accurately indicated, errors being confined chiefly to the directions. The reading of the prescription is as follows:—

Tablets of Aspirin ... ... Gr. v.  
mitte xviii

1 T.d.s.

Mist. Pot. Bromidi. c. chloral. 3xv.  
5ss. P. r. n.

The prize-winners are as follows:—

*London*.—J. Nixon, c/o D. C. Jones, 21 Aldgate, E.1.  
*Provinces*.—J. Righton, 513 to 515 Lord Street, Southport.

There were no correct results from Ireland or Scotland.

Any one of the following books may be selected as a prize: "Chemists' Windows"; "Minor Experiences"; "Practical Methods of Urine Analysis"; "Provincial Hospitals Pharmacopœias." Some of the replies included: "Tablets varium"; "Smith & Son," instead of "mitte xviii"; Pil. aloes et nux vom.; tinct. nuc. vom. m.v.; and Smith's Glyco-heroin 1 oz.

Our next problem is given below. Exact transcriptions of the prescription are invited on postcards only (one

*To Linseed oil seed 3lb  
Take 2spoon 3, to  
T' Cetone solution 1/2 3i  
Sp. Chloro cal 3, to  
dry cal 3, to*

attempt), which should reach "The Editor," THE CHEMIST AND DRUGGIST, 42 Cannon Street, London, E.C., not later than the first post on August 30.

Prizes will be awarded at the discretion of the Editor.

## Insurance Act Dispensing

Record of matters concerning Chemists' interests in the National Health Insurance Acts.

### ENGLAND AND WALES

#### Local Reports

**Preston.**—During 1923 there were 216,335 prescriptions dispensed by chemists, against 175,124 in 1922. The cost for 1923 was £7,933 13s. 3d., an increase of nearly £1,500 on 1922.

**Rochdale.**—At the July meeting of the Insurance Committee, held recently, it was reported that the payment to local chemists on account of prescriptions during March, April and May amounted to £1,802 18s. 4d. The chairman reported that statistics from the Lancashire Prescription Bureau showed that the total number of prescriptions made up in the Rochdale area during the period January 31 to March 31 were 49,158. They cost £1,863 14s. 1d. These figures reveal an increase over last year, whilst the figures for eight other Lancashire towns and for Westmorland show an increase of nearly 100 per cent. The authorities could not explain the cause of the increase, but the speaker believed that there was a great deal of silent suffering on account of unemployment.

# EDUCATIONAL INFORMATION



## Pharmacy

### GREAT BRITAIN

THE pharmaceutical Qualifying examination is now conducted on the basis of a division into two parts. It is true a candidate may still enter for both parts at one and the same time, but few are successful in passing both, and regulations making it compulsory to take them at different sittings of the Board are already suggested. Though, in all schools, the academic year is made to cover all subjects in Part I and Part II, an increasing number of students elect to take the parts at different sittings. It is simpler and more efficient. A few schools work on this basis. We outline the syllabus governing the course of studies. It should be borne clearly in mind that a more systematic study of the various subjects is now needed, owing to the transference of some portions of the chemistry syllabus to practical pharmacy and extension of the syllabus in physics. The syllabus at present in force is not the final form, and may only be considered as a passing phase; but candidates will not, for two or three years, be affected, since regulations will be needed to effect any further change. The question of the number of hours of study is still a vital one, as few schools can carry out the

full quota in the academic year, and the subjects in Part II, where the full course is maintained, tend to cramp the time necessary fully to understand certain parts—such as, for instance, poison law. The Government inspector's criticisms are still being made against this crowding of too much study in so short a time, and he appears to think this is one of the main causes of the failures. In London, in July, 1911 entered for the whole examination and only 28 passed; while 22 entered in Edinburgh, 8 being successful. There is a curious difference between the two cities in the assortment of those referred. Botany is the most fatal subject in London in Part I, the number being 79 out of 462 who sat; while in Edinburgh there were 12 out of 114. The reverse is shown in chemistry—London 21 and Edinburgh 31. In Part II London had 344 possible entrants and Edinburgh 106, though, it may be, all these never reached Part II in the case of those entering for the whole examination. Pharmacy showed in London 71 referred and Edinburgh 11. In poison law there were 9 referred, and none in Edinburgh. It would be a better guide to teachers and students alike if a more satisfac-

tory analysis were published than the one now officially made. Botany is evidently the weak subject in Part I so far as London is affected; and so long as there is a discrepancy between the subject as taught in the technical schools and the pharmaceutical syllabus, we are likely to continue to see this unsatisfactory state of things. Whether there is any actual difference of method of examination in this subject between Edinburgh and London, no one can say. Chemistry is now better treated, and the results reflect credit on the present methods of teaching. We can only surmise the results from those candidates referred; but it is fair to conclude that they are markedly good or hopelessly bad, which is a reflection on the students only. Candidates referred in physics are few; and if this is taken as a token of the general result it speaks well for the candidates, and the expectation of serious defects here has been falsified. The next great change was in pharmacy, where more practical chemistry was added. The number of referred candidates in London was about the same as last year, but in Edinburgh there was a reduction. It is not possible to draw hard-and-fast conclusions, since the published data are hopelessly insufficient. In any case, pharmacy appears to be the biggest proposition in Part II, which is what we should expect. While it is not possible to take too seriously the reports from

students, results appear to confirm the impression that the examination in dispensing is a different thing from that which is to be found in the open shop. Analyses of the work done under National Health Insurance show simple things in the ascendancy, so that one would expect the schools to concentrate on complicated things which are rarely prescribed, as it is always more than likely that examiners will test candidates in at least one difficult item in dispensing, though a good examiner can find out from simple tests whether a student knows his work or not. Ability comes by repetition of performance, and the examination syllabus is too crowded to allow of great frequency in some of the operations. The schools are filling up quite well, but there is no shortage of accommodation. Evening classes are available, so that the diligent student has a good opportunity for personal contact with the teacher. The principals of educational institutions are always pleased to advise students. We recommend that good use be made in the pharmacy of the syllabus outlined in the following pages. By keeping constantly before him the lines of study the

### Chemist and Druggist Qualification (IN BRIEF)

1. Notification and Registration with the Pharmaceutical Society of having passed an approved Preliminary Examination.
2. Apprenticeship, during which provision should be made for attendance in approved technical institutions of 300 hours in Chemistry, 60 hours in Botany, 60 hours in Physics.
3. Take first part of Qualifying examination in Chemistry, Botany and Physics.
4. Complete the necessary 4,000 hours' experience in an open shop or approved public institution, during which, or after, spend 600 hours in Pharmacy, 120 hours in Materia Medica, in an approved school.
5. At the age of 21, or thereafter, second part of Qualifying Examination in Pharmacy, Materia Medica, Poisons Law.

student should arrange his work to provide a thorough grounding in the fundamentals which are the basis of success. Above all, it is advisable for students who are eligible to train and enter for the many entrance scholarships now offered in pharmacy.

### Preliminary Examinations

The first step on deciding to take up pharmacy is to secure a certificate covering the following compulsory subjects : English, arithmetic, algebra, geometry, and two optional subjects, of which it is recommended that Latin should be one. These subjects must have been passed at not more than three examinations of the same examining authority. The registrar is empowered to accept certificates covering the six subjects, and with the proviso stated above, but any deviation from this may be considered by the Pharmaceutical Council on its merits. The question whether the preliminary education required is a satisfactory one is constantly being raised. Teachers and examiners agree that, unless the foundation is soundly laid in the scholastic examination, it is exceedingly difficult to obtain the fullest benefit from the subsequent course of study. A mere pass in the Preliminary means trouble later on; therefore it is advisable to devote as much serious attention to the entrance examination as is given to those for the final qualification.

#### LIST OF CERTIFICATES ACCEPTED

*Army Council*.—First-class Education Examination.

*Royal University of Belfast*.—Matriculation Examination.

*Universities of Birmingham, Leeds, Liverpool, Manchester, and Sheffield*.—Joint Matriculation Examination. Junior School Examination. School Certificate Examination.

*University of Bristol*.—School Certificate Examination.

*University of Cambridge*.—Junior or Senior Local Examinations.

*College of Preceptors*.—Senior or Junior Certificate Examination.

*University of Dublin*.—Public Entrance Examinations. (For "High Places.")

*University of Durham*.—School Certificate Examination. Higher Certificate Examination. Certificate of Proficiency Examination.

*Universities of Edinburgh, Aberdeen, Glasgow, and St. Andrews*.—Preliminary Examination in Arts, Medicine, or Science. Junior and Senior Local Examinations. Higher Local Examinations. Previous Examinations.

*Intermediate Education Board for Ireland*.—Senior or Middle Grade Certificate Examination.

*Educational Institute of Scotland*.—Medical Preliminary Examination. Professional Preliminary Examination.

*Pharmaceutical Society of Ireland*.—Preliminary Examination.

*National University of Ireland*.—Matriculation Examination

*Royal University of Ireland*.—Matriculation Examination.

*University of London*.—Matriculation Examination. Higher School-leaving Certificate. Junior School Examination. Senior School Examination.

*University of Oxford*.—Junior or Senior Local Examinations. Higher Local Examinations. Responsions.

*Oxford and Cambridge Schools Examination*.—Higher or Lower Certificate Examination.

*Scottish Education Department*.—The Intermediate Certificate or Passes in the Higher or Lower Grade of the Leaving Certificate Examination.

*Central Welsh Board*.—Honours, Senior or Junior Certificate Examination.

*University of Wales*.—Matriculation Examination.

If a student has passed an entrance examination of any other body not referred to in the above list he should submit it to the secretary of the Pharmaceutical Society,

17 Bloomsbury Square, London, W.C. 1, as such cases are considered on their merits. If the student has not already passed one of the examinations mentioned above he should at once take steps to enter for a suitable examination. Favourite examinations for pharmacy students are the junior certificate of the College of Preceptors, London, and the professional preliminary examination of the Educational Institute of Scotland. Of these we give particulars below, and refer students for fuller details to the syllabus of the various bodies or to Dodd's "Guide to Preliminary Examinations" (C. & D. Office, 3s. 6d., by post 3s. 11d.).

**THE COLLEGE OF PRECEPTORS**, Bloomsbury Square, London, W.C. 1, holds examinations for junior preliminary certificates at midsummer and Christmas at local centres, a list of which is issued two months before each examination. Entry forms, obtainable from the secretary of the College, must be filled up and returned six weeks before the day appointed for the examination. On the form the candidate indicates the subjects in which he desires to be examined, those required for pharmaceutical students being mentioned at the beginning of this section. The fees payable for junior candidates are 20s. and a local fee, the amount of which varies, but information as to the payment will be supplied two months before the examination. The fees are best sent with the entry forms, but, if not, must be paid twenty-eight days before the examination begins. Candidates should obtain the regulations for the examinations (post free) from the secretary of the College, as the books to be studied in some of the subjects vary from year to year. A complete set of papers at previous examinations can be obtained from the College at 2s. 3d., post free. Collected papers on each subject are obtainable from Mr. P. C. Bartlett, 27 Southampton Street, Strand, London, W.C. 2.

**EDUCATIONAL INSTITUTE OF SCOTLAND** (Registrar's Office, 47 Moray Place, Edinburgh) holds a preliminary examination for pharmaceutical students four times a year in Edinburgh, Glasgow, London, Liverpool, and Dublin. The fee is £1, and 10s. for any subsequent examination, and should be sent to the Registrar with the form of application duly filled in. Exemption can be claimed from subjects already passed on a Leaving certificate. The Institute issues a Calendar giving the regulations and examination papers, which can be obtained from the Registrar, price, by post, 2s.

A certificate of having passed a preliminary examination complying with the conditions having been obtained, it should be sent to the Registrar, the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C. 1, accompanied by a fee of two guineas, the student being then registered as an "apprentice or student."

From this point the period of apprenticeship may be said to begin. The specified number of hours required to be spent in an open shop or approved public institution is 4,000. In addition, a recognised course of study must be taken before any portion of the Qualifying examination can be attempted. In theory, the required number of hours does not begin until after registration; but owing to laxity in recognising this, concessions have been made by the Pharmaceutical Society's Council, to which all applications for recognition of hours served prior to registration should be made.

### The Qualifying Examination

The Board of Examiners sits in London and Edinburgh in January, April, July, and October for the purpose of conducting the statutory examinations—for the Major examination in April and July only. The Qualifying examination is in two parts, the first one including botany, chemistry, and physics, the second materia medica, pharmacy, dispensing, and poisons law.

The first part can be taken between the ages of eighteen and twenty-one, the second part only after the age of twenty-one has been reached.

The fee payable for the first part is six guineas, and the conditions are : The candidate must have spent the requisite number of hours in botany, chemistry, and physics in an institution approved for the purpose by the Pharmaceutical Society Council. If a candidate fails

in one subject and is referred by the examiner, he may be re-examined in that subject on the payment of the sum of £3 3s. Failure in more than one without reference back means re-examination in all, and the fee is the same.

Having passed each subject in Part I., and completed 4,000 hours, not less than two years, in an open shop or approved public institution and reached the age of twenty-one, the candidate should send a birth certificate, together with another fee of £6 6s. and the necessary declaration of having completed the conditions on the prescribed form, to the Registrar. The examination in Part II is conducted on similar lines to Part I., and success in all subjects entitles the candidate to be registered as a chemist and druggist by examination.

The pharmaceutical-chemist qualification may be obtained at a subsequent examination. (See "Major Examination.")

All candidates have the choice of being examined in London or Edinburgh, and they are required to state the venue desired when filling up the entrance form.

### The Examination Syllabus

The official syllabus is set out in each subject, followed by our comments.

#### PART I

##### BOTANY

(a) **CLASSIFICATION.** The main divisions of the vegetable kingdom and their most important characteristics: Thallophyta, Bryophyta, Pteridophyta, Phanerogamia. The following Sub-classes and Natural Orders of the Angiosperms: Thalamifloræ, Calycifloræ, Corollifloræ, Monochlamydeæ, Petaloideæ, Spadicifloræ and Glumifloræ, Ranunculaceæ, Cruciferae, Rosaceæ, Leguminosæ, Umbelliferae, Compositæ, Solanaceæ, Liliaceæ. The description of flowering plants in technical language.

The candidate is also required to recognise any of the plants in the following list:

##### *List of Plants for Recognition*

Aconitum Napellus	Matricaria Chamomilla
Althæa officinalis	Mentha piperita
Anthemis nobilis	Mentha Pulegium
Atropa Belladonna	Mentha viridis
Avena sativa	Menyanthes trifoliata
Brassica alba	Cenanthe crocata
Brassica sinapioïdes	Papaver Rhoeas
Bryonia dioica	Papaver somniferum
Cochlearia Armoracia	Pinus sylvestris
Colchicum autumnale	Prunus Laurocerasus
Conium maculatum	Quercus Robur
Cytisus Scoparius	Rosa canina
Daphne Laureola	Rosmarinus officinalis
Daphne Mezereum	Ruta graveolens
Datura Stramonium	Salix alba
Digitalis purpurea	Sambucus nigra
Dryopteris Filix-mas	Solanum Dulcamara
Feniculum capillaceum	Taraxacum officinale
Hordeum distichon	Taxus baccata
Hyoscyamus niger	Triticum vulgare
Juniperus communis	Ulmus campestris
Juniperus Sabina	Valeriana officinale
Lavandula vera	

(b) **MORPHOLOGY, INCLUDING ANATOMY.** The external form of plants: Thallus stem, root, leaves, inflorescence, flower, fruit. The distinguishing features and common modifications of these structures. Principles of branching and different kinds of branch systems. Phyllotaxis, including vernation. The different kinds of buds, and their arrangement on the stem. A general acquaintance with the elements of plant anatomy; the vegetable cell, tissues, e.g., meristematic, epidermal, fundamental, and vascular. The characteristic anatomical features of roots, stems, and leaves of flowering plants and ferns. The candidate is expected to recognise, by means of the microscope, and describe sections illustrating the above plant structures. The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues. The characters of the flowers. The methods of pollination, self- and cross-fertilisation. The formation of the seed and germination.

(c) **PHYSIOLOGY.** The elementary facts in connection with the physiology of plants, including the nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under

which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli—e.g., light, gravity, etc. Sexual and asexual reproduction.

The best advice which can be given to students in botany is to study nature at first hand, and not so much by dried specimens or diagrams. From the results of the examinations it appears that students make it a book subject, which is fatal to confidence when dealing with fresh material. Constant handling is of prime importance. The botanical gardens are open, and if direct contact is sought, no one need fear a failure in this interesting subject.

#### CHEMISTRY

An elementary knowledge is required of the following subjects:

(a) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; The hypothesis of Avogadro; atomic weight and molecular weight; chemical formulas and nomenclature; valency; the distinction between metals and non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds: Hydrogen, oxygen, ozone, water, hydrogen peroxide, chlorine, bromine, and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid, nitrogen, ammonia, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides and acids, thiosulphuric acid; phosphorus, phosphine, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus, silicon, silica, fluoride of silicon, silicofluoric acid; boron, boric acid. (c) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual methods of extracting and the chief properties of the under-mentioned metals, also the modes of preparation, properties, adulterations, and contaminations of their principal compounds: Potassium, sodium, ammonium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenium, antimony, tin, copper, bismuth, lead, silver, mercury, gold, and platinum. (d) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanides, ferrocyanides, and ferricyanides, oxalic acid. The chief methods of preparing methane, ethane, ethylene, acetylene, methyl and ethyl alcohols, formic and acetic aldehydes and acids, ethyl acetate, acetamide, olein, glycerol, benzene, phenol, nitro-benzene, aniline, benzoic acid, salicylic acid, hydrate of chloral, chloroform, iodoform, ether; the principal properties, reactions, and mutual relations of these compounds. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulas. The candidate is expected to solve simple problems relating to the weight and volume under different conditions of temperature and pressure of elements and compounds concerned in chemical reactions.

**Practical Examination.**—To recognise by chemical tests the more important non-metallic elements and compounds as well as the metals and salts indicated in the foregoing list; to recognise by their physical properties those which possess well-defined characteristics. To analyse a mixture containing not more than two metals and two acid radicals.

To identify by chemical tests the following organic compounds: Hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalates, acetates, tartrates, citrates, salicylates, starch, cane sugar, grape sugar, salicin, quinine, morphine, strychnine, and their salts.

To understand the principles of volumetric analysis, and to prepare, standardise, and use volumetric solutions.

To be familiar with the construction and use of the balance and to have a practical knowledge of the Imperial and metric systems of weights and measures.

To have a practical acquaintance with the methods of preparing the more important inorganic substances, and also the following organic compounds, ether, chloroform, amyl nitrite, ethyl acetate, and hydrocyanic acid, so that the candidate may be able to explain to the examiner the operations involved in their preparation, and, if called upon, to perform the operations or certain stages of them.

Pharmacopœial work is now included in pharmacy. It leaves this subject free to be studied in harmony with other science, studies. Chemistry is the study of the laboratory; it means practical work. Text-books are

formidable things unless some attempt is made to get at grips with the subject from the synthetic point of view. Analysis compels the student to practical work, there is no other way, but, synthesis is easily shirked, and, after all, experimental quantities will give a student the confidence which all the text-books in the world cannot give. The theoretical portions require the cultivation of the imagination. The student who can visualise the construction of the various formulas and reactions is never at a loss. It also gives confidence, and confidence in chemical work begets decision and success.

### PHYSICS

Candidates are required to possess an elementary non-mathematical knowledge of:—

(a) Units; mass; weight; the balance; force, energy, and work; levers and pulleys; gravity; centre of gravity; distinctions between solids, liquids, and gases; transmission of pressure in liquids; water-pumps; the siphon; Boyle's law; atmospheric pressure; barometers; air-pumps; diffusion; dialysis; specific gravity; vapour density.

(b) Temperature; thermometry; changes in volume of solids, liquids and gases with alterations of temperature; quantity of heat; specific heat; change of state; latent heat; boiling and freezing points; vapour pressure.

(c) Propagation of light; laws of reflection and refraction; photometry; simple properties of mirrors, lenses, and prisms; the eye as an optical instrument; the principles of the correction of errors of vision by means of lenses.

(d) Simple properties of magnets; simple phenomena of static electricity; electric currents; primary and secondary cells; the magnetic, chemical, and heating effects of currents; Ohm's law.

Candidates will also be required to show a knowledge of the construction and use of physical apparatus, so that they can explain to the examiner the methods of performing the commoner experiments in illustration of the subject detailed above.

The instructions speak of "elementary non-mathematical knowledge," but the term should not be taken too literally. The syllabus covers a big field, and some mathematics is a great help in studying this subject. An understanding of physics and physical problems must of necessity include some mathematical knowledge. It is a practical subject, and candidates will be expected to show not only their knowledge, but also be able to explain the methods with the apparatus which is set before them in the examination hall. The field is extensive, and sixty hours are none too long for gaining a practical knowledge; and though it may be said to be only elementary, the extent of the field will fully tax the capacity of any candidate.

*The First Day.*—The above subjects include the first day's examination. Candidates must secure a pass in all three subjects; there is no question of aggregation. If a candidate passes in two subjects and fails in one, he or she may be referred in that one subject only, but failure in two means taking the three subjects again. In any case, no candidate can proceed to Part II until a complete pass has been secured in each subject in Part I.

### PART II

#### MATERIA MEDICA

To recognise specimens of crude drugs mentioned in the British Pharmacopœia or in the annexed list; to be acquainted with their botanical, zoological, and geographical sources, commercial varieties, the natural orders to which they belong, and the mode of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised; to describe them correctly, and to point out diagnostic characters either chemical or physical, the latter so far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products.

Acori Calami Rhizoma	Amomi Meleguetæ Semina	Bryoniae Radix
Alkanæ Radix	Arecae Semina	Cacao Semina
Althææ Radix	Arnicæ Rhizoma	Calendulæ Flores

Canellæ Cortex	Fœni-grae e i	Pilocarpi microphylli Folia
Cantharis	Semina	Pimenta
Cassie Cortex	Fucus vesiculosus	Piper longum
Castoreum	Galbanum	Piper nigrum
Cetraria islandica	Guarana	Pix Burgundica
Chondrus crispus	Guttapercha	Quercus Cortex
Chrysanthemi cinerariaefolii Flores	Hellebori nigri Rhizoma	Rhamni Frangulæ Cortex
Cimicifugæ Rhizoma	Hyoscyami Semina	Sabinæ Cacumina
Cinchonæ Calisayæ Cortex	Ignatiæ Semina	Sandaraca
Cocæ Folia	Inulæ Radix	Sanguinarie Rhizoma
Cocculus Indicus	Iridis Rhizoma	Sanguis Draconis
Conii Fructus	Lacca	Sarsæ Radix
Convallariae Flores	Lactucarium	Scammonium
Crocus	Lauriæ Fructus	Sinapis Albæ Semina
Cumini Fructus	Lupulus	Sinapis Nigræ Semina
Cydoniæ Semina	Lycopodium	Stramonii Semina
Elaterium	Masticæ	Sumbul Radix
Elemi	Maticæ Folia	Tonco, Semina
Erythrophleæ Cortex	Moschus	Ulmi fulvæ Cortex
Eucaalypti Folia	Mylabris	Vanillæ Fructus
Euphorbiæ pilulifera Herba	Olibanum	Veratri albi Rhizoma
Euphorbiæ	Papaveris Capsulæ	
	Physo stigmatis	
	Semina	

Students have not the same opportunity as in the old days of handling crude drugs before college begins, but every chance should be seized for a first-hand acquaintance. The colleges are now well equipped with specimens of drugs, but it is not at all a bad plan to make a collection for oneself during pupilage; it increases the interest immensely. Examination specimens are usually selected ones, so that the greater the number of drugs definitely handled the less likely is the candidate to be taken by surprise when before an examiner. Observation and memory play an important part, and frequent contact with specimens materially helps to fix style and form on the mind. The failure percentage is comparatively low, and from inquiries it appears to arise from an inadequate knowledge of active principles and distribution.

### PHARMACY

*I. Pharmacy (General).*—(a) Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts; special characters and modes of preparing the various classes of extracts; influence of surface, temperature, and pressure upon the rate of evaporation; water, steam and sand baths; distillation, ordinary, fractional, steam, and destructive, distinctive characters and objects of each; official preparations illustrating the various kinds of distillation, apparatus employed, the retort and receiver still and worm, Liebig's condenser, principles on which they are constructed and used. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used. (b) Disintegration of solid substances; cutting, bruising, and pulverisation, apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Solution: its nature, solvent power of various menstrua, influences of (a) temperature; (b) state of division of the substance to be dissolved; (c) time; (d) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation, and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. Filtration, objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from tincture marcs, etc., screw, hydraulic and other presses. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of emulsions, the

most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids.

The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which official galenical preparations are made, and a knowledge of the proportion of active ingredient or crude material in such as contain aconite, antimony, arsenic, belladonna, cantharidin, chloral hydrate, chloroform, caustic potash, colchicum, digitalis, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nux vomica, opium, phenol, phosphorus, squill, stramonium, strophanthus, and official alkaloids and alkaloidal salts.

The candidate is further required to possess a general knowledge of the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopoeia.

**II. Practical Pharmacy and Dispensing.**—The conduct of such operations of the British Pharmacopoeia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters, and wines.

To weigh, measure, and compound medicines; to write the directions in concise language in a neat and distinct hand; to finish and properly direct each package.

To perform those volumetric determinations which are described in the British Pharmacopoeia.

To detect the chief impurities in the elements and inorganic compounds included in the British Pharmacopoeia, and also to detect the impurities in such of the organic compounds mentioned in the syllabus of the Practical Examination in Chemistry, as are included in the British Pharmacopoeia.

To determine quantitatively the total alkaloids in cinchona bark, and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture; and the resin in tincture of jalap.

**III.—Latin and Prescription Reading.**—The candidate will be required to read without abbreviation autograph prescriptions, translate them into English, understand the grammatical construction of the Latin, and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of posology. To calculate percentages and other quantities occurring in prescriptions; also to render in good Latin ordinary prescriptions written in English.

Pharmacy includes dispensing and is the most important subject on the second day of the examination. It is divided into two portions: (a) General; (b) Practical pharmacy and dispensing.

(a) **General.**—This includes a knowledge of the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopoeia.

(b) **Practical Pharmacy and Dispensing.**—On the latter there is little to be said, but under the former the candidate is required to perform certain operations, which

were previously within the chemistry syllabus, thereby making pharmacy probably the most searching test of the whole examination, whether Part I or II. They are:—

- (1) Pharmacopœial volumetric determinations.
- (2) To detect impurities in pharmacopœial chemicals.
- (3) Pharmacopœial assay work.

#### POISONS LAW

(a) To enumerate the poisons contained in the Schedule to the Poisons and Pharmacy Act, 1908, viz.: Poisons within Part I and Part II of the Schedule. (b) To describe minutely the conditions required upon the keeping, selling, and dispensing of poisons, both in Part I and Part II of the Schedule; and to write the proper entry required, according to Schedule F of the Pharmacy Act, 1868, for the sale of a poison coming within Part I of the Poisons Schedule. (c) To state the conditions imposed on the sale of scheduled poisons by wholesale and for export, and upon the sale of a scheduled poison when forming an ingredient in a medicine dispensed. (d) To state the conditions applicable to the sale of poisonous substances. (e) To explain the conditions imposed on the sale of arsenic by the Arsenic Act. To this must be added the laws relating to "dangerous" drugs and the regulations governing their distribution.

Students in London continue to be referred in the poisons law, and failures are also recorded. The Dangerous Drugs Regulations are tricky, and the data published by THE CHEMIST AND DRUGGIST are invaluable to students. The text of the Dangerous Drugs Acts has been printed in the *C. & D.*, but the student is advised to study the *C. & D.* Poisons Card No. 4, a new edition of which has recently been published. The Poisons Schedule (Poisons and Pharmacy Act) as amended by Orders in Council was printed in the *C. & D.*, I, 1921, p. 19. Particulars as to conditions to be observed on the sale of scheduled poisons in the United Kingdom are given in the *C. & D. Diary*, 1923.

The main difficulty about the poisons law is the absence of a book adequately dealing with the subject in non-legal language. The *C. & D. Diary*, 1922, gives a list of poisons the sale of which is controlled, and a summary of the pharmacy laws. These are also given on *C. & D.* Poisons Cards Nos. 1 and 2. These cards are sold at the uniform price of 1s. each, post free. Reference should be made to the various analyses of the Dangerous Drugs and Poisons (Amendment) Act, 1923, particularly as regards Section 17 of the Pharmacy Act, 1868. The Act referred to was printed in the *C. & D.*, I, 1923, p. 764, and editorial articles in that and subsequent issues explained the changes that had been made in the law. While it would be unreasonable to expect candidates to give a satisfactory account of the intricacies of Poisons and Pharmacy law, it is just as well to be aware of the places where there are pitfalls, since examiners may ask questions, and it is satisfying to show that intelligence has been applied to the interpretation of a very tricky and

### Syllabus for Qualifying Examination

(IN BRIEF)

#### Part I

##### BOTANY.

Classification; Recognition of Specific Plants; Physical Characteristics; Anatomical Structure; Physiology, Reproduction; Physical Effects of Light and Gravity.

##### CHEMISTRY.

Chemical Principles; Non-Metals and their Compounds; Characters and Classification of Metals; Formation of Oxides and Salts; Carbon and its Oxides; Hydrocarbons, Acids, Alcohols; Aldehydes, Esters; Benzene and Pharmaceutical Homologues; Knowledge of Estimation of Carbon; Hydrogen, Nitrogen; Simple Chemical Problems.

##### PRACTICAL CHEMISTRY.

Analysis of a salt containing not more than two Metals and two Acid Radicals; Identification and Knowledge of certain Medicinal Organic Compounds; Principles of Volumetric Analysis.

##### PHYSICS.

Conservation of Energy; Gravitation, Balance, Pressures; Diffusion, Vapour Densities; Thermometer, Barometer; Specific Gravity. Mass, Force, Energy, Work; Forms of Matter; Temperature and Pressures; Light: Reflection and Refraction; Correction of Vision; Magnets; Static and Current Electricity; Primary and Secondary Cells.

#### Part II

##### MATERIA MEDICA.

Pharmacopœial Drugs and others specified; Recognition, Classification; Sources, Structure, Chemical and Physical Characteristics; Active Principles.

##### PHARMACY.

Laboratory Methods and Appliances; Preparation and Production of Galenicals; Knowledge of Assay; Dispensing and Prescription Reading and Translation; Pharmacopœial Volumetric Estimations and Impurities.

##### POISONS LAW (Pharmaceutical Jurisprudence).

Knowledge of Schedules, Conditions and Precautions of Sale.

opinionative subject. Any student basing his reading and knowledge on the information referred to cannot fail to satisfy the examiner in poisons law.

### The Major Examination

This examination is still conducted unchanged in method or matter. The proposal to establish a bachelorship of science, with pharmacy as one of the main subjects, has now been carried to its final staging; whether it will prove attractive or not some years will be required to show, since the initial stage will be different, and those who have not matriculated will be required to go back and begin again if they desire the B.Sc. in pharmacy. Probably, when the degree is sanctioned finally, we shall have the Major examination re-drafted; but until that time, the present method will prevail.

For many years the Major examination has been under a cloud. Several public institutions require it for their chief officer, but, generally speaking, the average man or woman takes it because of the knowledge that there is a higher standard than the Qualifying examination, and without it, they would scarcely be happy. Clearly, the Major is one of temperament. The subject-matter has not been changed for many years and the syllabus is thoroughly out of date, but it enables a man to call himself a pharmaceutical chemist, and leaves him there.

The examination is held twice a year, in April and July, both in London and Edinburgh. The fee is three guineas, and candidates must be qualified chemists and druggists. The date of entry is the 15th of the preceding month. The examination lasts three days, and includes chemistry, physics, materia medica, and pharmaceutics and botany. The syllabus is in reality an extension of the Qualifying one and is best undertaken as a continuation of studies. The returns show a varying percentage as passing the examination, but that means the whole only, as there is no provision for reference back.

### Summary of Examination-fees

Apart from the fees for collegiate courses the following are payable by pharmacy students:

Registration as student, £2 2s.

Part I of Qualifying examination, £6 6s.

Re-examination in case of failure, £3 3s.

Part II, £6 6s.

Re-examination fee, £3 3s.

Candidates registered before December 31, 1919, may enter for the whole examination at one time. Fee £10 10s.

Major examination, £3 3s.

### Schools of Pharmacy

The revised examination regulations of the Pharmaceutical Society of Great Britain have resulted in the preparation of a list of approved schools and other institutions, some of which are recognised for Part I of the Qualifying examination, and others for Parts I and II. The most recent list is as follows:—

#### INSTITUTIONS APPROVED FOR PART I

(An asterisk indicates that the school so marked is at present recognised in certain subjects only.)

Accrington, Secondary School\*  
Accrington, Technical School\*  
Barnsley, Technical School  
Barnstaple, Grammar School\*  
Bath, Kingswood School  
Birmingham, Central Secondary School  
Birmingham, Aston Technical School\*  
Blackburn, Municipal Technical School  
Blackheath, High School\*  
Blackpool, Technical School\*  
Bolton, Municipal Technical School\*  
Bolton, Secondary School\*  
Bournemouth, Municipal College  
Bradford, Technical College  
Bridlington, Grammar School\*  
Bristol, Colston Girls' School  
Bristol, Merchant Venturers' Technical College  
Bristol, Redland High School\*

Burnley, Technical School  
Burslem, Wedgwood Technical School  
Bury, Technical School\*  
Cambridge, County School  
Carlisle, School of Chemistry  
Cheltenham, Technical School  
Chesterfield, Municipal Technical School\*  
Colchester, Technical College  
Coventry, Bablake School\*  
Darlington, Technical College  
Dartford, Technical Institute\*  
Derby, Technical College  
Dewsbury, Municipal School\*  
Dover, County School for Boys\*  
Dover, Technical Institute\*  
Dudley, Girls' High School  
Eastbourne, Technical School\*  
Ely, King's School\*  
Eye, Grammar School\*  
Folkestone, Technical Institute\*  
Framlingham, College\*  
Gillingham, Technical Institute\*  
Grimsby, Municipal College\*  
Halifax, Municipal Technical College  
Handsworth, Technical School  
Harrogate, Technical School  
Hastings, Municipal School of Science  
Huddersfield, Technical College  
Hull, Hymer's College\*  
Hull, Municipal Technical College\*  
Hyde, County School\*  
Ipswich, Municipal Secondary and Technical Schools\*  
Ipswich, High School for Girls  
Kingston-on-Thames Science and Art School\*  
Lancaster, Storey Institute  
Leamington, Technical School\*  
Leeds, Central Technical School  
Leeds, Grammar School\*  
Leicester, Wyggeston Grammar School  
Leith, Technical College  
Lincoln, Technical School  
Lincoln, Secondary School\*  
Liverpool, Municipal Technical School  
London:—  
Acton, Aske's Girls' School\*  
Birkbeck Institute  
Bromdesbury High School\*  
Gordon Hall School of Pharmacy for Women, Gordon Square, W.C.\*  
Kennington, Girls' Secondary School\*  
Latymer Upper School, Hammersmith\*  
Leyton, County School for Boys\*  
North London Collegiate School for Girls  
Northern Polytechnic Institute  
Norwood Technical Institute  
St. Saviour's and St. Olave's Grammar School for Girls, New Kent Road  
Sir John Cass Technical Institute  
Southgate, County School\*  
Sydenham County Secondary School for Girls  
West Ham Municipal Technical Institute  
Wimbledon, Technical Institute\*  
Woolwich Polytechnic\*  
Lowestoft, Secondary School\*  
Manchester, College of Technology  
Newcastle-on-Tyne, Armstrong College  
Newport (Mon.), Technical Institute  
Norwich, Technical Institute  
Oxford, City Technical School\*  
Paisley, Technical College  
Perth, The Academy  
Plymouth, Technical School  
Pontypridd, County School  
Preston, Harris Institute  
Reading, University College  
Redditch, Secondary School  
Rochdale, Municipal Technical School\*  
Salford, Royal Technical College\*  
Scarborough, Municipal Secondary School  
Sheffield, Central Secondary School  
Shrewsbury, Borough Technical School\*  
Smethwick, Technical School  
Southampton, King Edward VI School\*  
Southampton, University College  
Southend (Essex), Technical School\*  
Southport, Technical School\*  
Stepney, Raines School for Boys\*  
Torquay, Secondary School  
Truro, Central Technical Schools

Tunbridge Wells, Technical Institute\*  
 Walsall, Municipal Institute  
 Wellingborough, Technical Institute\*  
 Whitby, St. Hilda's Priory  
 Wolverhampton, Technical School  
 Worcester, Victoria Institute\*  
 York, Technical School

INSTITUTIONS APPROVED FOR PARTS I AND II

Aberdeen, Robert Gordon's College  
 Bath, College of Pharmacy, Cleveland Place  
 Birmingham, Technical School, Suffolk Street  
 Brighton, Municipal Technical College  
 Cardiff, Technical College  
 Dundee, Technical College  
 Edinburgh, Heriot-Watt College  
 Edinburgh, Royal Dispensary School of Pharmacy  
 Exeter, University College  
 Glasgow, Royal Technical College  
 Leeds, College of Pharmacy, Clarendon Road  
 Leicester, Municipal Technical School  
 Liverpool, School of Pharmacy, 2 Blackburn Place  
 London:—  
   School of Pharmacy of the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, W.C.1  
   South-Western Polytechnic Institute, Manresa Road, Chelsea, S.W.3  
   London College of Pharmacy, 361 Clapham Road, S.W.  
   South of England College of Pharmacy, 185 Clapham Road, S.W.  
   Westminster College of Pharmacy, 190 Clapham Road, S.W.  
 Manchester, Victoria University, Pharmaceutical Department  
 Manchester, College of Pharmacy, 292 Oxford Road  
 Nottingham, University College  
 Portsmouth, The Municipal College  
 Sunderland, Technical College  
 Swansea, Technical College

INSTITUTION APPROVED FOR PART II ONLY

London, Gordon Hall School of Pharmacy for Women

ENGLAND AND WALES

LONDON

The School of Pharmacy  
 17 Bloomsbury Square, W.C. 1

Staff : Pharmaceutics—Professor Henry G. Greenish, F.I.C., F.L.S. (Dean). Demonstrators : C. E. Pearson, G. H. Sumner. Chemistry and Physics—Lecturer : C. E. Corfield, B.Sc., F.I.C. Lecturer in Physics : C. J. Eastland. Demonstrators : E. Woodward, B. W. Melhuish, F. W. Adams, W. Ellison. Botany—Lecturer : T. E. Wallis, B.Sc., F.I.C. Demonstrator : A. M. Saunders.

Session commences in October, course for Qualifying examination (Fee £31 10s.) lasts until June 1925, and for Major examination (Fee £21) until March 1925.

Birkbeck College

Bream's Buildings, Fetter Lane, E.C. 4

Principal : George Senter, D.Sc. Recognised for Part I of Qualifying examination. Autumn term commences September. Day course £7 10s. per term, or £20 per session (three terms).

Chelsea Polytechnic

Manresa Road, Chelsea, S.W. 3

Principal : Sidney Skinner, M.A. Head of Chemical Department : J. B. Coleman, A.R.C.Sc., F.I.C., F.C.S. Senior Lecturer in Pharmacy : C. Morton, Ph.C., F.C.S., assisted by F. N. Appleby, Ph.C., A.I.C. This school of pharmacy is fully equipped with lecture-rooms, chemical and pharmacy laboratories, including a technical laboratory in which galéniques are prepared on a manufacturing scale. Day courses arranged for Qualifying (Part I and Part II), Major and Apothecaries' Hall examinations. Inclusive fee £7 per term (three months). Evening courses also held. Fees from £1 to £3 per session (nine months), according to subjects taken. The day and evening courses are recognised by the Pharmaceutical Society. It is thus possible to qualify by attendance at evening classes only. Courses commence on September 22. Copies of pharmacy prospectus from Secretary.

Gordon Hall School of Pharmacy for Women

15 Gordon Square, W.C. 1

Principals : Miss E. S. Hooper, B.Sc., F.I.C., Ph.C., and Miss K. M. King, Ph.C. Courses of training for Qualifying examination of Pharmaceutical Society and for Apothecaries' Hall dispensers' examination. Special coaching and evening classes for pharmaceutical and science students. Particulars from Principals.

Haberdashers' Aske's School

West Acton, W. 3

Recognised for Part I of the Qualifying examination. Teachers : Physics, Miss Mackenzie, B.A., B.Sc.; Chemistry, Miss Odling, B.Sc.; Botany, Miss Rawsthorne, B.Sc.

The three subjects follow the Intermediate Science course. Fees : £6 6s. a term.

London College of Pharmacy,

with which is incorporated the South London School of Pharmacy (Muter's),

361 Clapham Road, S.W. 9

Staff : Henry Wootton, B.Sc., C. W. Gosling, Ph.C., W. F. Gulliver, Ph.C. (late member of the Board of Examiners), B. C. Cook, M.P.S., H. J. Everett, Inter. B.Sc. Independent courses extend over nine, six and three months for Qualifying examination. Fee, £10 10s. per term. Evening classes, Monday, Wednesday and Thursday. From £1 1s. per term. Six months' Major course. Fee, £10 10s. per term. Nine months' course for Apothecaries' Hall dispensers' examination. Fee, £6 6s. per term. There is a botanical garden attached to school.

North London Collegiate School for Girls

Sandall Road, London, N.W.

Staff : Chemistry—Miss Stern, B.Sc., London. Physics—Miss Miles, B.Sc. Liverpool (Honours in Mathematics, Class I). Botany—Mrs. Hatfield, B.Sc. London (Honours in Botany, Class I, Gold Medallist).

Course of work in physics, chemistry and botany for Part I of the Qualifying examination is mostly identical with that for intermediate science of the University of London. Hours, between 9.15 a.m. and 4.30 p.m. Fees : £10 per term.

Norwood Technical Institute

Knight's Hill, West Norwood, S.E. 27

Principal : L. N. Coombs, B.Sc., A.I.C. Afternoon and evening classes for Part I of Qualifying examination. Fees : Sessional 15s. (two terms per year). Special fees to students outside administrative county of London. Enrolment date, September 15.

Raine's School for Boys

Stepney, London, E.

Teachers : Chemistry—Mr. H. S. Browning, B.Sc., Hons. (Lond.). Physics—Mr. F. G. Luton, B.A. (Cambs.), B.Sc. (Lond.). Botany—Miss D. Carruthers, M.Sc. (Lond.).

School hours, 9.30 to 4 p.m. Part I of the Qualifying examination may be taken after 12 months. Fees : £3 10s. per term (3 terms per year).

Southgate County School

Fox Lane, Palmers Green, N. 13

Headmaster : A. T. Warren, M.A. (Oxon). Staff : Physics—H. A. Paull, B.Sc. (Lond.). Chemistry—W. Auger, B.Sc. (Lond.), A.R.C.S., A.I.C. Biology—R. J. Ludford, B.Sc., Ph.D. (Lond.), F.R.M.S., F.R.H.S. Special courses for Part I of the Qualifying examination. Fees : £4 4s. a term (three terms a year).

South of England College of Pharmacy

186 Clapham Road, S.W. 9

Principal : H. Lucas, Ph.C., F.C.S., assisted by a fully qualified staff. Course of tuition for the Qualifying examination extends over periods of six and nine months, commencing on October 9. Fees £21 and £31 10s. Evening classes resumed on October 13. Major evening course extends from October 13 to July 1925. Fee £9 9s. Revision course for October examination starts on August 13. Fee £6 6s.

Dispensing department has been entirely reorganised and improved; the volumetric and quantitative laboratory has also been rearranged.

#### Sydenham County Secondary School for Girls

Head Mistress: Miss E. B. Turner, M.A. Science staff: G. Attwater, B.Sc., S. Cook, B.Sc., E. Frodsham, Nat. Sci. Tripos (Cambridge), M. A. Shuttleworth, Final Honours School of Natural Science (Oxon.), H. Webb, B.Sc. No outside pupils taken for Qualifying examination. Science course for Part I (botany, chemistry and physics) for girls who have matriculated.

#### West Ham Municipal College

Principal: T. C. Baillie, M.A., D.Sc. Pharmacy and Materia Medica: R. S. Glennie, Ph.C. Botany: Mr. W. B. Hamby.

Evening course in pharmacy, materia medica and chemistry, commencing in September. Fee: Students residing in West Ham or East Ham, 14s. per session; other students, 28s. per session.

#### Westminster College of Pharmacy

190 Clapham Road, London, S.W. 9

Principals: G. S. V. Wills, Ph.C., and P. H. Woodnorth, Ph.C. Staff: J. G. Everett, Ph.C. (Council Medalist), and A. Dickes. Tuition for all pharmaceutical examinations. Revision course of six weeks commenced on August 13. Fee, £6 6s. The 1924-5 session commences on October 8, and arrangements are made for revision, six and nine months' courses. Part-time classes for Part I and Part II are held and preliminary instruction by correspondence courses. Classes on Wednesday and Thursday evenings for all Pharmaceutical examinations.

#### Woolwich Polytechnic

Woolwich, S.E.18

Principal: A. F. Hogg, M.A., F.C.S. Head of Chemistry Department: G. Melland, M.Sc., A.R.S.M., F.I.G., F.C.S. Lecturers: J. G. Kettlewell, M.Sc.; S. Platt, B.Sc. Head of Physics Department: T. B. Vinycomb, M.C., M.A., late Junior Fellow R.U.I., and 1851 Exhibitioner. Lecturers: H. M. Dickson, B.A.; A. R. Lindsay, B.Sc.; J. Poole, B.Sc. Evening classes only, 7 to 9.30 p.m. Fees: First evening, 20s.; second evening, 10s.; any additional evening, 5s., per session of 36 weeks. Recognised for chemistry, physics and botany in Part I of the Qualifying examination.

### PROVINCES

#### Accrington Technical School

Principal: J. P. Ackroyd, B.Sc. Staff: R. Y. Digby, B.Sc., H. Ashworth. Course each year occupies three evenings of two and a half hours each, one and a half hours being devoted to practical work. Three years' course. Fees: 7s. 6d. a year.

#### Aston Technical School

Principal: Charles A. White, M.Sc., B.Sc. Chemistry Lecturer: J. C. Hutton, B.Sc. (Hons.). Physics: W. B. Wynn, B.Sc. Part-time day and evening classes. Fees: Part-time day, £1 to £3 per session, according to age of student and number of attendances. Evening: First year, 7s. 6d.; second year, 10s. Recognised for chemistry and physics.

#### Barnsley Technical School

Principal: D. Paton Grubb, B.Sc. (Edin.), M.Eng. (Sheff.), A.R.S.M., F.C.S. Chemistry: A. Price, B.Sc. (Lond.), A.I.C., L.C.P. Session from September 22, 1924, to July 4, 1925. Affiliated to University of Sheffield. Recognised for Part I of Qualifying examination. Students can obtain either full-time or part-time instruction during the day. Fee: Full-time, £9 9s. a session; part-time course, proportionately less. Evening instruction in chemistry and physics, and on one afternoon a week in botany. Fee (three subjects), 12s. 6d.

#### Barrow-in-Furness Technical School

Lecturer: T. Hopkins, M.Sc., F.I.C. Evening classes in chemistry from September to April. Fees: First year, 7s. 6d.; second and third years, 10s.

#### Bath and West of England College of Chemistry and Pharmacy

Principal: David J. Williams, B.Sc. (Lond.), Ph.C., F.C.S. Staff: P. J. Thompson, chemist and druggist, F.C.S.; W. Cooper, Ph.C.; A. H. Millard; G. H. Moore. Special Qualifying examination revision commences on August 6; full-time day courses, including long course and three months' revision course for Qualifying (Parts I and II), Major and Apothecaries' Hall examinations commence on October 8. Correspondence courses for all above examinations, as well as scholarships. Numerous successes in this section, including £200 won at various times. In addition to chemical laboratories and dispensaries (two), there is a well-fitted botanical laboratory and a large physics laboratory, with full equipment of apparatus.

#### Birmingham Handsworth Technical School

Principal: W. E. Harrison, B.Sc., A.R.C.S. Staff—Physics: E. A. Lees, A.R.C.S., H. J. Roper, Int.B.Sc., E. M. Joiner, B.Sc. Chemistry: W. W. Sirmam, B.Sc., E. M. Joiner, B.Sc., W. H. Hardaker, M.Sc., B.Sc., L. G. Beresford, B.Sc. Botany: W. H. Hardaker, M.Sc., B.Sc. Recognised for Part I of the Qualifying examination. Fees: Evening—Pharmaceutical classes in chemistry, physics, and botany, 10s. for approved course per session. Day—One half-day per week, £1 per session; two half-days, £2 per session; three half-days, £3 per session. Students under eighteen years of age, reduced fee of £1 per session for two half-days per week (additional half-days as above). Day classes fee includes admission to approved evening classes.

#### Birmingham and Midland College of Chemistry, Pharmacy and Botany

Principal: G. L. Scott, Ph.C.

Next term for Qualifying examination begins October 1; two courses, elementary (six or nine months) and advanced (three months). Half-day and evening classes; former on Wednesdays and Thursdays (2 p.m. to 9 p.m.), and latter on Mondays and Thursdays (7 p.m. to 9 p.m.), and on Wednesdays (6 p.m. to 9 p.m.). Fees (for full-time course): Three months, £9 9s.; six months, £18 18s.; nine months, £27 6s.; for part-time classes, any class, £2 10s. for three months. Full-time class for Major examination, fee £9 9s. for three months. Part-time classes by arrangement. Classes for students entering for the Apothecaries' Hall assistants' examination held alternate mornings and afternoons. Fee (nine months' course) £15 15s.

#### Birmingham Municipal Technical School

Principal: W. E. Sumpner, D.Sc., F.C.G.I. Head of Chemistry Department: J. Newton Friend, D.Sc., Ph.D., F.I.C. Senior Lecturer in Pharmacy: H. Berry, Ph.C.

Courses arranged for students of any branch of pharmaceuticals. Following courses for Qualifying examination commence on October 6:—Nine months' full-time for Parts I and II; fee, £20. Nine months' part-time day course for Part I; fee, £12 10s. Nine months' full-time for Part II (new regulations); fee, £20. A three months' full-time revision course for Parts I or II commences in April 1925; fee (either part), £5. Part-time afternoon course for apprentices commences in September. Six months' full-time course for Major examination commences October 6; fee, £20. Students may take single subjects.

#### Blackburn Technical College

Principal: F. J. Harlow, B.Sc., A.R.C.Sc., F.Inst.P. Physics: W. G. Darvell, M.Sc., A. H. Berry, B.Sc. Botany: J. Ransom. Head of Chemistry Department: G. W. F. Holroyd, M.A., F.I.C., assisted by Messrs. J. Rhodes, B.Sc. (Lond.), A.I.C., Miss E. Holt, B.Sc. (Lond.), and J. H. Stringfellow.

Full-time day courses in chemistry, physics, and

botany, for Qualifying examination, also special classes for pharmaceutical apprentices on three half-days per week. Syllabus for Qualifying examination covered in this course also. Fee: £1 1s. per half-day per session.

#### Bolton Municipal Technical School

Head of Chemical Department: T. M. Nightingale, B.Sc. Chemistry: J. L. Whiteside, F.C.S., F. Smith, B.Sc., A. Sykes, B.Sc., F. Slater, B.Sc. Physics: J. W. Grine, B.Sc. Recognised for chemistry and physics for Part I of the Qualifying examination. Course fees: 5s. to 10s. One to two evenings a week, from 7s. 6d. to 17s. 6d., as to year of study.

#### Bournemouth Municipal College

Principal: Hubert Painter, B.Sc. Lecturers.—Chemistry: F. E. Wilson, B.Sc., A.I.C.; A. S. White, B.Sc., A.C.P. Botany: Miss H. V. Davies, B.Sc.; Mrs. D. E. Glass, Inter-Science, London. Physics: R. M. Clark, B.Sc.; H. W. Unthank, M.A.; Templeton Smith, B.Sc. Recognised for Part I of Qualifying examination. Day classes, fee (twenty-five hours per week), £6 6s. per term; reduced fees for part time. Evening classes, fee, about £1 1s. per session of two terms. Term commences September 17.

#### Bradford Technical College

Principal: Professor H. Richardson, M.Sc. Head of Department of Biology: A. M. Smith, M.A. (Cantab.). Assistant Lecturer in Pharmacy and Materia Medica: J. W. Cooper, Ph.C. Pharmaceutical course involves part-time attendance during two sessions for students for Qualifying examination. Supplementary course also arranged for Major examination. Part-time assistants' course for Assistants' examination of Society of Apothecaries. Evening courses, three evenings per week during three or five sessions, are also arranged for the Qualifying examination. Fees: General course, £9 9s.; assistants', £9 9s.; evening (with half-day per week in laboratory), £1 11s. 6d. Opening dates: Evening, September 22; day, September 29.

#### Brighton Technical College

##### Department of Pharmacy

Principal: W. Mansergh Varley, M.A., D.Sc., Ph.D. Head of Department: H. B. Mackie, Ph.C., F.C.S. Full-time day courses for 1924-5, for Qualifying and Major examinations. Each course commences on September 16. Fees for students residing in Brighton, £7 7s. per term, or £21 per session. Courses conducted under active supervision of advisory committee of local pharmacists. Social and recreational life of College is directed by Students' Association. Silver medals for most successful students. A medal founded by Mr. E. White carries with it free place for Major course. The Cripps Exhibition, open to students of the South-Eastern Area, is tenable at the College. For particulars apply to Principal.

#### Bristol Merchant Venturers' Technical College

Chemistry Lecturer: W. A. Andrews, B.Sc., A.I.C. Assistant Lecturers: F. J. W. Popham, F.I.C., A. Marsden, F.I.C., H. A. M. Borland, M.Sc. Physics: G. Pugh, B.Sc.

Evening classes in chemistry, elementary physics, matriculation physics, magnetism and electricity, and botany. Recognised for Part I of the Qualifying examination. Session commences on September 29. Fee: One class with laboratory work, 15s.; lecture class, 7s. 6d.; course of three subjects, third year course, 7s. 6d.; fourth year and higher courses, 10s.; matriculation courses, 12s. 6d.

#### Burslem, Wedgwood Technical School

Principal: M. S. Pickering, B.Sc. (London.). Lecturer in Materia Medica and Pharmacy: S. T. Bennett, M.P.S.

#### Cardiff Technical College

Principal: Charles Coles, B.Sc. Head of Department: Thomas Lewis, Ph.C. Lecturer in Pharmaceutics: Fred. J. Dyer, Ph.C. Chemistry: E. A. Rudge, B.Sc., A.I.C. Assistant: H. Aldred, M.Sc., A.I.C. Physics: J. Webber, B.Sc. Botany: Freda M. McLean, B.Sc.

For full nine-months' day course for Qualifying examination commences on October 7. Fee, £15 15s. Apothecaries' Hall Assistants' examination, nine-months' course. Fee, £15 15s. Part-time course in Part II subjects of Qualifying examination. Fee, £3 3s. Major course. Fee: (October to July) £15 15s. Open scholarships offered annually for competition. Prospectuses on application to Principal.

#### Darlington Technical College

Principal: J. W. Angles, M.Sc., A.M.I.Mech.E. Chemistry: A. J. Bishop, B.Sc., and J. Watson, M.Sc., A.I.C. Evening pharmaceutical course (Part I) from 7 to 9.30 p.m. First year, 15s.; second year, 20s.; third year, 25s. Recognised for Part I of the Qualifying examination.

#### Derby Technical College

Principal: F. W. Shurlock, B.A., B.Sc. Lecturers.—Chemistry: J. Yates, M.Sc., F.I.C., G. E. Pool, B.Sc., F.I.C., E. A. Seeley, M.Sc. Physics: G. H. Broom, B.Sc., F. Record, B.Sc.; W. D. Jones, B.Sc. Botany: W. B. Randles, B.Sc. Pharmacy: W. E. Stokes, Ph.C.

Courses arranged in day and evening classes. Fees: Day, £5 5s. per term or £15 15s. per session; one half-day per week, 15s. per term or £2 5s. per session; evening classes, £1 10s. per session. Recognised for Part I of Qualifying examination.

#### Dover Technical Institute

Lecturers.—Chemistry, A. B. Constable, M.A., B.Sc. Botany: G. D. Thomas, B.Sc., F.C.S. Chemistry and botany courses especially intended for pharmaceutical students. Fee (evenings), 10s. 6d. for one or two subjects.

#### Eastbourne Technical Evening School

Physics and Chemistry: Evenings only. Mr. W. L. Vellender, B.Sc. Tuesday, Physics; Thursday, Botany; and Friday, Chemistry. A special lecturer gives instruction in botany. Fee, 17s. 6d. for complete course of 26 weeks. Single subject, 12s. 6d. for 26 weeks. Class prizes are offered by the Education Authority and the local Pharmacy Association.

#### Exeter, University College of the South-West of England

Principal: H. J. W. Hetherington, M.A. Chemistry: Professor W. H. Lewis, M.A., F.I.C., S. Glasstone, M.Sc., Ph.D., A.I.C., and Miss R. King, M.Sc. Physics: F. Newman, D.Sc., Ph.D., A.R.C.Sc., V. H. L. Searle, B.Sc. Botany: J. L. Sager, M.A. Pharmaceutics: A. H. Ware, Ph.C. Courses include preparation for Qualifying examination and for Apothecaries' Assistants' examination. Fees, £31 10s. for both parts, or £18 18s. for one part. For Apothecaries' Assistants' examination, £18 18s.

#### Halifax Municipal Technical College

Principal: J. Crowther, B.Sc. Head of Chemistry Department: W. J. Stansfield, A.R.C.S., F.C.S., A.I.C. Lecturer in Botany: C. Fielding, Ph.C. A course of instruction (two sessions) for Part I of the Qualifying examination. The classes are held on Tuesday, Wednesday, and Thursday afternoons, and Tuesday evening. Duration of session: September 8, 1924, to July 16, 1925. Fee, £1 1s. per session.

#### Harrogate Technical School

Principal: W. E. Jalland, M.Sc., L.C.P. Chemistry: W. Wallis, Inter. B.Sc., L.C.P. Physics: T. H. Lusher, B.Sc. Botany: A. O. J. Williams, B.Sc. Recognised for Part I of the Qualifying examination. Each class meets weekly for two and a half hours, 6.50 to 9.20 p.m. Fees, 7s. 6d. for two subjects. Monday: Botany or Physics. Tuesday or Thursday: Chemistry.

#### Huddersfield Technical College

Principal: J. F. Hudson, M.A., B.Sc. Full day and evening courses in subjects for Part I of the Qualifying examination of the Pharmaceutical Society are held. Also part-time courses in pharmacy and materia medica. Fee: Part-time course, £3 3s. a session.

**Hull Municipal Technical College**

Head of Chemistry Department: Geo. E. Johnson, B.Sc., F.I.C., assisted by eight lecturers. Classes in inorganic and organic chemistry, physics, botany, Latin and prescription-reading, pharmacy and *materia medica*.

**Ipswich Girls' High School**

Recognised for Part I of Qualifying examination. Pharmaceutical students follow the science sections of the advanced course. Four hours' instruction in each subject, supplemented by private study periods. Fees, £3 3s. a term for each subject, and £8 for the whole course of three subjects.

**Ipswich Municipal Schools**

Courses in chemistry and physics are recognised for the Qualifying examination. Application should be made to the Principal.

**Lancaster Technical School**

Headmaster: F. H. Mould, B.Sc., A.R.C.S. Lecturers:—S. Walton, B.Sc., P. Gillman, B.Sc., W. Knowles, B.Sc., Miss E. Richardson. Recognised for Part I of Qualifying examination. Local apprentices may attend on Monday afternoons and several evenings per week. Fees, 10s. to 15s.

**Leamington Technical School**

Lecturers: Physics: F. W. Onslow, B.Sc.; Chemistry, C. T. Freeman, M.A., Cantab.; Botany, Mr. K. Cartuthers, M.A. (Cantab.). Evening classes 7.30 to 9.30 p.m. Recognised for Part I of the Qualifying examination. Physics, Tuesday, Chemistry, Wednesday, Botany, Thursday. Fee, 10s. per class.

**Leeds College of Pharmacy**

Principal: F. Pilkington Sargeant, Ph.C., F.C.S., Vice-principal: Arthur W. Lupton, Ph.C.

Full-time course for Qualifying examination begins October 14, fee £31 10s. Six months' course for Part I or II, £21. Revision course from August 19 until September 26. Fee, £6 6s. Applications for benches to Mr. Lupton. Apothecaries' Hall course (nine months) £21, commencing on October 14.

**Leeds Technical School**

Principal: R. E. Barnett, B.Sc. Chemistry: R. Gawler, M.Sc., F.I.C., assisted by A. Taylor, M.Sc., A.I.C., H. E. Goodson, A.R.C.S., S. Parrish, B.Sc., A.R.C.S., M. S. Fox, B.Sc., and R. A. Hobley, B.Sc. Physics: J. Crosfill, B.Sc., and L. Moore, M.Sc. Botany: Miss G. M. Redfern, M.Sc., and Rev. H. Parish. Part-time day course in chemistry, physics, and botany for the Qualifying examination. Fee, £12 12s. for session. Evening course in same subjects occupies three sessions. Preparatory course for the Preliminary examination. Fee, £1 1s. Full course for Apothecaries' Hall examination in chemistry, *materia medica*, and dispensing occupies nine months (fee, £15 15s.); Conducted in co-operation with the Leeds Public Dispensary. Particulars, post free, from Principal.

**Leicester City Technical School**

Principal: Geo. F. O'Riordan, B.Sc. Chemistry: A. S. Wood, M.Sc., A.I.C., F. Jones, M.Sc., F.C.S. Pharmacy: F. W. Thompson, Ph.C. Eleven months' course (thirty hours' instruction per week); fee, £21, covering all subjects in Parts I and II of the examinations, £14 for subjects in Part I or Part II only. (Six months' course.) Part time, £4. Part-time course for the Major examination. Students prepared for Assistants' examination of Society of Apothecaries. Course for apprentices and students for Preliminary examination. Commencing date, September 16.

**Leicester, The Wyggeston Grammar School**

Headmaster: T. Kingdom, M.A. Staff: Chemistry: L. A. Pickles, M.Sc. (Lond.) Physics: E. C. Cowell, B.Sc. (Lond.), D. I. C. Botany: H. M. Lacey, B.A. (Cantab.). Advanced science course recognised for Part I of Qualifying examination. Six hours of instruction per week throughout a three-term session extending from September to July. Fees, £15 15s. for the session.

**Leyton County High School for Boys**

Headmaster: M. Gompertz, B.A. Chemistry: W. E. Clarke, A.R.C.Sc., L.C.P. (Hons.). Physics: E. Smith, B.Sc. (Hons.), F. Parsons, B.Sc., G. E. Ryle, Inter B.Sc., C. H. Rice, B.Sc. (Hons.) (in Botany). Recognised for Part I of Qualifying examination (Chemistry and Physics). Term begins September 9.

**Lincoln Municipal Technical School**

Principal: A. E. Collis; Registrar, M. Brewitt. Evening classes for chemists' apprentices are held in chemistry, *materia medica*, botany, sound, light and heat, and Latin.

**Liverpool Municipal Technical School**

Principal: J. Scholes Hague, M.Sc. Chemistry: Senior Lecturer, A. E. Findley, B.Sc., F.I.C. Physics: S. S. Richardson, D.Sc. Botany: W. Narramore, F.L.S. Afternoon and evening classes. Fees for pharmaceutical students (three classes weekly) vary from £1 to £2 as to course.

**Liverpool School of Pharmacy**

Principal: H. Humphreys Jones, A.I.C., Ph.C., F.C.S., assisted by J. Butler, B.Sc. (Hons. chemistry), M.P.S., R. A. Williams, M.P.S., Miss Delys Jones. Revision course for Parts I and II of the Qualifying examination begins August 12. Fee, £6 6s. Autumn session commences October 9. Nine months' course for whole examination. Fee, £31 10s. Six months' course for Part I. Fee, £21. Part-time classes for Part I commence October.

**Manchester College of Technology**

Principal: B. Mouat Jones, M.A. Lecturers: F. S. Sennatt, M.Sc., F.I.C., H. Stevenson, F.I.C., J. Walmsley, Ph.C., A.I.C., H. C. Welsh, — Howarth, — Adamson Mercer. A complete course in subjects for Part I of Qualifying examination is given jointly with Botanical Department of the University on Wednesday afternoons and evenings commencing the first week in October. Course extends over three years, and is also intended to prepare students for the Manchester, Fairchild, and Leverhulme Scholarship Competitions held in June. Courses in pharmacy for these competitions are given in Pharmaceutical Department of the University in the third year of the course. Particulars on application to the Registrar. Fees: First year, £3 3s.; second and third years, £4 14s. 6d. per annum. Session commences September 29. Students enrolled September 22.

**Manchester School of Pharmacy**

Principal: Harry Brindle, B.Sc. (Lond.), F.C.S., Ph.C., A.I.C. Assisted by Charles Turner, F.L.S., F.C.S., Ph.C., and an experienced staff. New term for the Qualifying examination commences on October 9. The school was founded in 1882, and has been responsible for the training of nearly 2,000 pharmacists. For particulars apply to the Principal. A special feature is made of individual attention to each student, the number of students in each class being strictly limited.

**Manchester University**

Qualifying and Major courses in Pharmaceutical Department commence in October and continue for six to nine months, composition-fees being £22 1s. and £31 10s. respectively. Part-time (afternoon) and evening courses, extending over three years, have also been arranged for Part I of Qualifying examination at College of Technology; fee, £12 12s. Degree courses in pharmacy are available here, and equipment is unsurpassed by any other pharmaceutical institute. Mr. James Grier, M.Sc., Ph.C., is in charge, assisted by Miss Ivy Roberts, M.Sc., Ph.C. (Pereira Medallist).

**Newcastle-on-Tyne, Armstrong College**

Pharmacy students may be admitted to classes in chemistry, physics and botany, taking (probably) first year classes. Tutors in Science will arrange what classes in the different subjects should be taken. Fees, £25-£30 per annum, according to the classes taken.

**Newport (Mon.) Technical College and Institute**

Principal: G. R. Bennett, B.Sc., M.B.E. Lecturers: Chemistry and Botany, A. Brennan, B.Sc., H. Rowland, B.Sc. A course is arranged by which the students can attend the ordinary class of the institution in physics and chemistry on Tuesday or Thursday. For apprentices who can only attend in the evening, chemistry can be taken on Monday or Wednesday, physics on Tuesday or Thursday, and botany on Thursday. Fees for evening course, £1 11s. 6d. for session; fees for part-time day course, £3 3s. for session.

**Norwich Municipal Technical Institute**

Principal: Hugh Ramage, M.A., F.R.C.Sc.I. Recognised for Part I of the Qualifying examination. Evening classes. Session opens September 15. Chemistry: W. W. Reed, M.Sc. Physics: D. O. S. Davies, B.Sc. Botany: P. P. F. Lookes. Fees: Lectures, 4s. a course; laboratory work from 8s. to about £1, according to number of attendances.

**Nottingham University College**

Principal: Professor W. H. Heaton, M.A.; Chemistry: Professor Kipping, F.R.S., and six assistants. Botany: Professor Carr, M.A., and four assistants. Physics: Professor Barton, F.R.S., and five assistants. Pharmacy Materia Medica and Dispensing: A. O. Bentley, Ph.C., and Mrs. K. Stather. Full-time day course (nine months) for the Qualifying examination. Fee, £30. Major (six months), £20. Prospectus will be sent free on application to the Registrar. Next session begins October 1.

**Oxford City Technical School**

Principal: Mr. A. H. Flemming, B.Sc. Staff: Chemistry and Physics: J. S. Hill, B.A., B.Sc. Botany and Materia Medica: H. Baker, B.A. Recognised for Part I of the Qualifying examination. Session commences September 22. Evening courses: Three or four evenings a week. Fees: £1 10s. Three years' course for apprentices. Fees, 15s. each year.

**Plymouth and Devonport Technical Schools**

Principal: W. S. Templeton, M.A., B.Sc., A.M.I.E.E., F.Inst.P. Physics: Head of Department, the Principal. Lecturers: F. C. Marks, B.Sc., and E. W. Gibbs, B.Sc. Chemistry: Head of Department, J. R. Thackrah, M.A. (Oxon), Ph.D. (Leipzig); F.C.S. Lecturer: T. Thorne Barnes, B.Sc. Materia Medica and Pharmacy: F. A. Spear, M.P.S. Part-time courses for Part I of the Qualifying examination are held three afternoons or evenings each week. Fee: £3 3s. per session. Full-day courses for registered students. Fee, £24. Enrolment week commences September 8.

**Portsmouth Municipal College**

Principal: Oliver Freeman, Wh.Sc., A.R.C.S., B.Sc., Head of Chemistry, Pharmacy and Natural Science Department: W. H. Watson, M.Sc., A.R.C.S. Lecturers: Chemistry: G. M. Painter, M.C., B.Sc., A.I.C. Pharmacy: F. Hemming, Ph.C., M.P.S. Courses: Full-time day courses (nine months) for Parts I and II of Qualifying examination. Fees: (Residents), £15 15s.; (Non-Residents), £21. Full-time Day Courses (six months) for Part II and Major examination. Fees: (Residents), £12 12s.; (Non-Residents), £16 16s. Part-time course for Apothecaries Hall examination: Evening classes in all subjects for Qualifying examination. Fees: 7s. 6d. to 25s. for the sessions. Classes commence on September 15, 1924. Students must register previous week.

**Preston, Harris Institute**

Principal: T. R. Jolly. Affiliated to Universities of Manchester and Liverpool. Tuition in chemistry, physics, and botany. Opening date September 24. Fee, £9 9s. per session of three subjects, or £3 3s. per term. One subject, £4 5s. per session; two, £7. Recognised for Part I of the Qualifying examination.

**Reading University College**

Dean of the Faculty of Science: Professor H. Bassett. Recognised for Part I of Qualifying examination; students

attending the ordinary intermediate science course in physics, chemistry and botany. Fees: One term, £12. One session (three terms), £24. Reduced to ratepayers in specified counties to £18.

**Salford Royal Technical College**

Principal: Bertram Prentice, D.Sc., Ph.D. Recognised for Part I of the Qualifying examination. Day and evening classes for pharmaceutical students in chemistry, botany and physics. Day-course fee: £3 3s. to £7 17s. 6d. per term. Evening: 15s. to £2 2s.

**Scarborough High School for Boys**

Head-Master, F. Mayor, M.A. (Cantab.). Staff: Chemistry: G. B. Walsh, B.Sc. Physics: H. Halliday, A.R.C.S. Botany: A. I. Burnley. Courses: Much of the work is done concurrently with that for higher school certificate (joint board). Three hours' chemistry, two-and-a-half hours' physics, two-and-a-half hours' botany, are specially set apart for pharmaceutical students. Fees: £2 2s. per term for one subject; £4 for three.

**Sheffield Central Commercial College**

Principal: W. B. Marshman. Staff: Chemistry: Ellis Jackson, B.Sc., G. R. Davies, B.A. Physics: J. S. Hawnt, B.Sc., E. L. Cotton. Botany: A. Burgess, B.Sc. Recognised for Part I of Qualifying examination in chemistry, physics and botany. Course extends over three years. Sheffield Branch of Pharmaceutical Society offers prizes to best students each year. Classes will be held from September 1924 to May 1925, on Monday, Tuesday and Wednesday from 7 to 9.30. Fee for complete course, 17s. 6d. Classes for junior students who have not passed the Preliminary examination are also held. Fee, 10s. 6d.

**Southampton University College**

Professor of chemistry: D. R. Boyd, D.Sc., Ph.D., F.I.C. Special facilities in chemistry department for pharmaceutical students. Tuition fees according to number of lectures, and hours of practical work per week. Part-time fees for term: Lectures, one hour a week, £1 10s.; session, £3 10s.; two hours, £2 10s.; session, £5 10s.; three hours, £3; session, £7. Laboratory work: three hours (or less) a week, £1; session, £3.

**Sunderland Technical College**

Principal: V. A. Mundella, M.A., B.Sc. Pharmacy, Dispensing, and Materia Medica: Miss H. C. M. Winch, A.I.C. (Pereira Medallist). Chemistry: C. F. Baker, B.Sc., Ph.D. Recognised for Parts I and II of the Qualifying examination. Full-time day course, October to July. Fee: £31 10s. for combined course, and £15 15s. for either part. Part-time evening courses, Part I, September to July, for two sessions. Fee: 30s. first session, 35s. second. Part II, according to students' requirements. Fee: £2 10s. Registration dates: September 24 for day courses, and September 17 for evening courses.

**Swansea Municipal Technical College**

Staff: Chemistry and Head of Department: E. A. Tyler, M.A. (Cantab.), F.I.C. Physics: J. C. Kirkman, B.Sc., F.P.S. Pharmaceutical subjects: S. A. W. Rushbrooke, Ph.C. Approved for Parts I and II of Qualifying examination. Introductory and full-time courses for both parts of the examinations and full-time course for examination of Society of Apothecaries, and a Major course. Provision also made for revision work. Application should be made before September 23.

**Truro Technical School**

Principal: C. G. M. Delahunt, M.A. Pharmaceutical course extends over two to three years (chemistry, physics, botany, materia medica, pharmacy, and dispensing).

**Wolverhampton Science and Technical School**

Head of Chemical Department: Dr. T. J. Murray, M.Sc., F.I.C. Lecturer in Materia Medica and Pharmacy: J. M. Caley, M.P.S. Lecturer in Physics: A. T. Harrison, B.Sc. Session commences in September and con-

tinues until end of April. It is followed by a short summer session, in which supplementary and revision work, field work in botany, etc., may be taken. Fees: Course in chemistry or pharmacy, including special part-time day classes, £1 2s. 6d.; evening lectures in individual subjects, 10s. 6d. per session.

#### Worcester, Victoria Institute Schools

Recognised in chemistry and physics for Part I of the Qualifying examination.

#### SCOTLAND

##### Aberdeen, Robert Gordon's College

Chemistry: W. Maitland, D.Sc.; R. Craven, B.Sc., A.R.C.S., A.I.C.; J. Harley, M.A., B.Sc.; J. E. Ritchie, M.A., B.Sc., F.I.C. Pharmacy: E. G. Bryant, B.Sc., Ph.C.; D. S. Rattray, Ph.C.; C. A. Lee, M.A.; G. O. Clark, M.A., B.Sc. Day course for Qualifying examination opens on September 2 and continues until June 1925. Fee, £31 10s. Evening course occupies four sessions. Fee, £2 per session. Students may then join revision (April to June) course at reduced fee of £8 8s. Major examination course (October-June), £21.

##### Dundee Technical College

Heads of Departments: Botany and Pharmacy—D. McCall, B.Sc., Ph.C. Chemistry and Physics—C. W. Cochrane, D.S.O., B.Sc. Students prepared for Qualifying and Major examinations. Nine months' day course commences October 7. Fees: Qualifying examination, including all laboratory requirements, complete nine months' course, £31 10s. (£10 10s. for each term). Major examination, £5 5s. for each term of three months. Evening classes for Part I. First and second years, £1; third year, £1 10s.

##### Edinburgh, Heriot-Watt College

Principal: A. P. Laurie, M.A., D.Sc., F.R.S.E. Professor of Chemistry: A. Archibald Boon, D.Sc., B.A., F.I.C., F.R.S.E. Lecturers: Chemistry: R. H. Hopkins, B.Sc., F.I.C. (Bio-Chemistry); James Sandilands, A.I.C., A.H.-W.C.; Hugh H. Campbell, B.Sc., A.H.-W.C. Physics: William Watson, M.A., B.Sc. (Head of Department); John Milne. Botany: Andrew Howison, M.A., B.Sc. Pharmaceuticals: John C. Henderson, Ph.C.; and Demonstrators in each subject. Complete courses of instruction in all subjects for examinations (Qualifying and Major) of Pharmaceutical Society. Courses in the various subjects (chemistry, physics, botany, and pharmaceuticals) conducted by systematic lectures, demonstrations, laboratory instruction, and tutorials, and botanical excursions are undertaken during summer months. Qualifying course will be of such a nature as to encourage students to extend their training for Major course. Fee for each course, £31 10s., plus 5s. Matriculation fee, nine months' training. Students trained in College for Qualifying course will be admitted to Major course at a fee of £21. Winter session commences in October. Full particulars from Professor Boon.

##### Edinburgh Royal Dispensary and School of Pharmacy

Principal: William Duncan, Ph.C., F.C.S., assisted by W. G. Mackenzie, Ph.C., and Eric A. Knott, Ph.C. Complete day courses for Parts I and II of the Qualifying examination. Fees for Part I or Part II, £21. Both parts combined, £31 10s. per session. Session from October until following July. Hours, 9 a.m. to 5 p.m. daily. Courses for Part I in evening classes, Mondays, Tuesdays and Thursdays, 7.30 p.m. to 9.30 p.m. Fees per session, £12 12s.

##### Glasgow Royal Technical College

Superintendent and lecturer in botany and *materia medica*: David Ellis, D.Sc., Ph.D., F.R.S.E. Lecturer in pharmacy and *materia medica*: J. P. Todd, Ph.C. Demonstrator: Miss B. C. M. Eadie.

The professors of chemistry and of physics undertake the work in their respective subjects. Classes for the Qualifying and Major examinations, and also for the degree of B.Sc. (pharmacy) begin in September.

#### Paisley Technical College

Principal: Angus MacLean, B.Sc. (Lond.). Recognised for Part I of the Qualifying examination. Session commences in September. Classes extend over three sessions. Fee, 25s. per session. Classes also arranged for Preliminary examination. Fee, 15s. Head of Chemistry Department: G. G. Gardiner, B.Sc. (Lond.). Lecturers: Chemistry: Thomas A. Wilson, F.I.C.; Wilfred Whalley, B.Sc. (Vict.); J. M. Hird, B.Sc. (Lond.), A.R.C.S.; J. McKean, A.I.C.; John A. Barker, M.P.S. Botany: D. Cuthbertson, B.Sc. (Glas.). Physics: P. M. McConnell, B.Sc. (Glas.); J. C. Young.

#### Perth Academy

Headmaster: George F. Bates, B.A., B.Sc. Lecturers: Physics: T. Brydone, M.A., B.Sc. Chemistry and Botany: James Taylor, M.A., B.Sc. Pharmacy Course consists of a winter and a summer session. Fee, 5s. (Evening classes.) Recognised for Part I of the Qualifying examination.

#### Books for Students

Each college principal has a preference for certain text-books which students are required to use. Some even have their own series specially printed. The following list contains particulars of the most popular text-books for pharmaceutical students.

##### BOTANY

"Elementary Botany," Edmonds (Longmans), 4s.  
"Text-book of Botany," Amy Johnson (Allman), 8s. 6d.  
"Structural Botany": Part 1, "Flowering Plants"; Part 2, "Flowerless Plants," D. H. Scott (Black), each 6s.  
"Botanists' Pocket Book," Hayward, revised by G. C. Drue (Bell), 5s.  
"Practical Botany for Beginners," Bower and Gwynne-Vaughan (Macmillan), 4s.  
"Text-book of Botany for Medical and Pharmaceutical Students," James Small (Churchill), 21s.  
"Botany for Students of Medicine and Pharmacy," Fitch and Salisbury (Bell), 10s. 6d.

##### THEORETICAL CHEMISTRY

"Elementary Inorganic Chemistry," James Walker (Bell), 5s. (suitable for beginners).  
"Text-book of Inorganic Chemistry," Senter (Methuen), 7s. 6d.  
"Modern Inorganic Chemistry," Mellor (Longmans), 12s. 6d.  
"Text-book of Inorganic Chemistry," Newth (Longmans), 8s.  
"Text-book of Inorganic Chemistry," Partington (Macmillan), 25s.  
"Theoretical Organic Chemistry," Cohen (Macmillan), 7s.  
"Inorganic Chemistry," Lowry (Macmillan), 28s.

##### PHARMACEUTICAL LATIN AND PRESCRIPTION-READING

"Latin Grammar of Pharmacy," Joseph Ince (Baillière), 7s. 6d.  
"Medical and Pharmaceutical Latin for Students of Medicine and Pharmacy," R. R. Bennett (Churchill), 10s. 6d.

##### MATERIA MEDICA

"Materia Medica," Southall, revised by E. W. Mann (Churchill), 12s. 6d.  
"Text-book of Materia Medica," Greenish (Churchill), 25s. (new).

"Drugs in Commerce; their Source, Preparation for the Market, and Prescription," Humphrey (Pitman), 3s.

##### PHARMACY

"British Pharmacopoeia," Constable, 10s. 6d.  
"British Pharmaceutical Codex" (Pharmaceutical Society), 30s.  
"Practical Pharmacy," Lucas (Churchill), 27s.  
"Essentials of Pharmacy," Wootton (London College), 5s.  
"Art of Dispensing," MacEwan (C. & D. Office), 8s.

##### PHYSICS

"Practical Physics," Allen and Moor (Macmillan), 10s. 6d.  
"Text Book of Physics," Duncan and Starling (Macmillan), 18s.  
"Manual of Physics," Crowther (Oxford University Press), 14s.

## Ireland

Until the present condition of affairs in Ireland becomes more clearly defined, the arrangements for qualifying in pharmacy remain as hitherto. The Irish Pharmacy Acts of 1875 and 1890 differ from the corresponding British Acts in that they lay down the subjects in which candidates for the Licentiate and the Registered Druggist qualification are to be examined—with the addition, in the earlier Act, of "such other subjects as may from time to time be prescribed by any regulations made in pursuance of this Act." The principal effect of the 1875 Act was to authorise those registered under it—pharmaceutical chemists—to do dispensing; further, it restricted the sale of poisons to such persons and others who previously had the right. By an amending Act of 1890 the sale of poisons by retail was extended to a class of non-dispensers—registered druggists. Those persons who were in business when the first Act passed are designated chemists and druggists, and are a diminishing body, as the continuation of the title was not provided for in the new Act. A qualification for assistants to pharmaceutical chemists was also created by the 1890 Act, these being entitled to transact business in the temporary absence of their employers. The Government of Northern Ireland intends to introduce a Bill setting up an autonomous body to represent pharmacy in its territory. The Secretary and Registrar of the existing Pharmaceutical Society of Ireland is Mr. A. T. Ferrall, 67 Lower Mount Street, Dublin.

### Preliminary Examination

The Pharmaceutical Society of Ireland conducts its own Preliminary examination, but accepts in lieu the certificates of the following examining bodies: The Matriculation or Preliminary examination of the University of Dublin, Public Entrance examination (large certificate); the National University of Ireland, Matriculation examination; the Royal Colleges of Physicians and Surgeons, Ireland, Preliminary examination; the Intermediate Education Board for Ireland, Junior, Middle, or Senior Grade examinations in the following subjects: English, Latin, arithmetic, algebra, geometry, and Greek, or a modern language; or such other examination as shall be deemed by the Pharmaceutical Council as equivalent thereto, *all the subjects having been passed at one time*. Provided that every certificate accepted shall include Latin as one of its subjects. Any such examination to be passed *prior to the statutory service at pharmacy*, unless such service has been commenced before January 1, 1907.

The subjects of the Preliminary examination are:—

**LATIN:** Translate and parse sentences from Caesar's *Commentaries* ("De Bello Gallico"), first book, or Virgil's *Aeneid*, first book. Translate an easy English sentence into Latin.

**ENGLISH:** English grammar, including orthography and parsing. Write on a subject selected by the examiner, and write from dictation.

**ARITHMETIC:** First four rules, simple proportion, vulgar fractions and decimals. Describe the British weights and measures and the metric system.

**ALGEBRA:** As far as simple equations, inclusive.

**GEOMETRY:** Including the first book of Euclid.

Also one modern foreign language.

The examination is held at 67 Lower Mount Street, Dublin, on the first Thursday and following days in January, April, July and October, at 10 a.m. A fee of £3 3s. must be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar (Mr. A. T. Ferrall), 67 Lower Mount Street, Dublin, with birth certificate and the name of the optional subject, at least fourteen clear days before the commencement of the examination. The re-examination fee is £2 2s. A copy of the marks awarded in the examination to any candidate is supplied for 2s. 6d. The Irish Preliminary examination is accepted by the British Pharmaceutical Society as an entrance examination.

### Pharmaceutical Licence

The qualifying examination for pharmaceutical chemist in Ireland is that of Licentiate. The conditions to be fulfilled before entering upon the Pharmaceutical Licence examinations are:—

(a) After preliminary registration the person must serve four years as apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist, of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries in an open shop, and the candidate must spend the business day with his employer. Provision is made for service with more than one employer, and, for those who have served four years with a chemist and druggist or registered druggist in Ireland, two years' further service with a pharmaceutical chemist or an apothecary suffices.)

(b) Attend three-months' courses of lectures in theoretical chemistry and in botany and *materia medica*, and a three-months' course of practical chemistry (after the lectures in theory) at one or other of the following approved institutions:

School of the Pharmaceutical Society of Ireland.  
School of the Pharmaceutical Society of Great Britain.  
Central Technical Institute, Waterford.  
Municipal Technical School, Ballymena.

Municipal Technical School, Londonderry.  
Municipal Technical School, Drogheda.  
Municipal Technical Institute, Limerick.  
Central Technical Institute, Limerick.  
Cecilia Street School of Medicine, Dublin.  
City of Dublin Technical Schools.  
Government School of Science, South Kensington.  
Queen's University, Belfast.  
Queen's University, Cork.  
Queen's University, Galway.

Royal College of Science for Ireland, Dublin.  
Royal College of Surgeons in Ireland, Dublin.  
School of Physic, Trinity College, Dublin.  
The Anderson College of Medicine, Glasgow.  
Royal Academic Institution, Belfast.  
The Municipal Technical Institute, Belfast.  
Mr. Templeton's School of Scientific Method and Chemistry, Belfast.  
Crawford Municipal Technical Institute, Cork.

Some of these are approved for all the subjects, others for theoretical chemistry only.

(c) The person must be twenty-one years of age.  
(d) Declarations and certificates of the foregoing must be lodged with the Registrar when the candidate applies for entry to the Licence examination.

The examination commences on the second Wednesday of January, April, July and October, at 10 a.m., and is

held in the Pharmaceutical Society's House, Dublin. Candidates must give notice of intention to attend, to the Registrar, fourteen clear days before the date of the examination, and this must be accompanied by a receipt of having paid the fee (£10 10s.) into the Bank of Ireland to the credit of the Society. The necessary forms should be procured well in advance. The re-examination fee is £4 4s. The examination, which is written, practical and oral, is in the following subjects:—

**BOTANY:** Recognition of the principal indigenous plants used in medicine, their natural orders, and the characters of their several parts.

**MATERIA MEDICA:** Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

**CHEMISTRY:** Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, description of the processes by which they are obtained, qualitative analysis (including B.P. tests) and volumetric analysis, and a practical examination in these subjects. (The Council recommends Corbyn and Stewart's "Physics and Chemistry.")

**PRACTICAL PHARMACY:** Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act, 1870.

#### Assistants to Pharmaceutical Chemists

This examination, instituted as a qualification for assistants left temporarily in charge of the business of a pharmaceutical chemist, is held quarterly, being on the Saturday following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of £1 1s. New candidates pay, in addition, a registration-fee of £1 1s. The re-examination fee is £1 1s. The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are:—

**PRESCRIPTIONS.**—Candidates will be required to read autograph prescriptions, translate them into English, render a correct translation of the directions for use, and detect unusual doses.

**PRACTICAL DISPENSING.**—To weigh, measure, and compound medicines, write the directions in suitable language, finish and properly direct each package.

**MATERIA MEDICA AND QUALITY OF SPECIMENS.**—To recognise the Pharmacopœia chemicals in frequent demand, and specimens of roots, barks, leaves, fruits, resins, and gums, in ordinary use; also to estimate the quality of each specimen submitted, and its freedom from adulteration.

**PHARMACY.**—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, such as extracts, tinctures, and powders, and give the proportions of the more active ingredients.

The candidates will also be examined in the Sale of Poisons (Ireland) Act.

#### Registered Druggists

This is a statutory grade of sellers of poison, who are not, however, qualified as dispensers of prescriptions. The subjects of the examination are prescribed by the Pharmacy Act (Ireland) Amendment Act, 1890, and are as follows:—

English orthography and composition.

Arithmetic and the weights and measures of the British Pharmacopœia.

The appearance of properties of the various drugs and chemicals in general use.

The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary keeping open shop, and is held in Dublin and Belfast (if twelve candidates apply) on the second Tuesday of January, April, July and October. Applications for admission, accompanied by the necessary declarations of service and a receipt for £4 4s. (examination-fee £2 2s., and registration-fee £2 2s.) placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations. The re-examination fee is £2 2s.

Copies of examination papers are obtainable from the Registrar.

## Irish Educational Institutions

### Pharmaceutical Society's Schools

67 Lower Mount Street, Dublin

Director: Chemistry School, Professor H. Norminton, M.Sc. Botany and Materia Medica School, W. H. Ashmore, Ph.C., and P. O'Connor, B.Sc., A.R.C.Sci.I. Three sessions commence on October 1, January 1, and April 1. Fees: Theoretical chemistry (three months), £1 11s. 6d.; practical chemistry (six months), £8 8s.; practice course (three months), past students, £2 2s.; students of other schools, £4 4s.; botany and materia medica (three months), £3 3s. Day class in practical chemistry (three months) begins in April, fee £8 8s.; also day practice course. Botany and materia medica classes held on Tuesday and Thursday evenings with occasional Saturday demonstrations. Chemistry (day) course is recognised by Royal Colleges of Physicians and Surgeons in Ireland. Book prizes offered in each class.

### Belfast, Municipal College of Technology

Head of Chemistry Department: Professor H. Wren, D.Sc. Lecturer in Materia Medica and Pharmaceutical Botany: T. Harper, M.P.S.I.

The Pharmaceutical Section of the Pure and Applied Chemistry Department provides courses in chemistry, botany, materia medica, and pharmacy (evenings). Fees: 7s. 6d. to 12s. 6d. per subject per session.

### School of Scientific Method and Chemistry

The Gables, Botanic Avenue, Belfast

Principal: S. Templeton, Assoc.R.C.S., F.I.C.

Day and evening courses for Licence examination begin on September 1. Fees: Full course in one session (seven months) or spread over a longer period, if desired, £12 12s.; per subject: Theoretical chemistry, £2 2s.; practical chemistry, £6 6s.; botany, £2 2s.; materia medica, £2 2s.; pharmacy, £2 2s. Full-time course, £10 10s. per quarter.

### Apothecaries' Assistants

According to Section 5 of the Apothecaries Act, 1815, if apothecaries refuse to compound or unfaithfully compound physicians' prescriptions, they are liable to penalty. To help the apothecaries in this work of dispensing, Section 17 enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as an assistant to any apothecary." The conditions of entrance to the examination are as follows:—

(a) The candidate (male or female) must be at least eighteen years of age. (b) A certificate of general education up to the age of sixteen must be produced. (c) A certificate signed by a principal teacher of chemistry at a university, university college, technical institute, school of pharmacy, or a secondary school, or by a person possessing a university degree in science or a fellowship of the Institute of Chemistry, showing that instruction in chemistry has been taken for 200 hours, and that experiments have been performed by the applicant, and (d) a certificate signed by an apothecary's assistant holding a public appointment, a registered chemist and druggist, or a registered medical practitioner, showing that instruction in practical pharmacy has been taken for 200 hours and practical work done for nine months, must be produced. (e) The candidate must pass an examination in (1) compounding and dispensing medicines, (2) chemistry, materia medica and pharmacy, and prescription-reading.

The examination takes place in January, April, July and October, and is entirely practical and oral. The fee is £6 6s., re-examination fee £3 3s. Particulars can be obtained from Mr. Frank Haydon, L.R.C.P., Secretary to the Court of Examiners, Apothecaries' Hall, Blackfriars, London, E.C. 4.

Similar powers to examine and grant certificates to assistants are possessed by the Apothecaries' Hall of Ireland, 95 Merrion Square, Dublin.

### Scholarships and Prizes

Students of pharmacy may compete for several scholarships and prizes, the training for which is not without benefit, even to the unsuccessful candidates.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Major examination during the year. The competitive examination is in *materia medica*, botany, and chemistry, and is held shortly after the Major examination in April. The registrar informs each person entitled to compete. The first prize is the Pereira Silver Medal and £5 worth of books; second, the Society's Silver Medal; and third, the Society's Bronze Medal. The Society also has in its gift the following scholarships:—

*Jacob Bell Scholarships*.—A scholarship is offered annually by the Pharmaceutical Society of Great Britain as a memorial of Jacob Bell. The award comprises free education at the Society's School and £50 in cash, with a gift of books. The scholarship is open only to student-associates of the Society not less than twenty or more than twenty-two years of age. The second competitor in order of merit will be called a Manchester scholar if eligible to hold that scholarship. Application for admission must be made to Sir William Glyn-Jones, 17 Bloomsbury Square, London, W.C.

*The Burroughs Scholarship* of about £50 every second year for research in the Society's laboratory.

*Harrison Memorial Medal*.—The award is made annually for the paper by a pharmacist, of not more than five years' standing, deemed to be the most important contribution to the chemistry of drugs during the year.

*Herbarium Prizes*.—The Pharmaceutical Society of Great Britain offers annually to its student-associates a silver medal, a bronze medal, and certificates of honour for a herbarium of British plants collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man between January 1 in one year and July 1 in the year following.

*The Charles James Hewlett Memorial Exhibition* is of the value of about £15, and is awarded annually on the recommendation of the professors of the Pharmaceutical Society's School to the student-associate (other than a Bell scholar) who most distinguishes himself during attendance at the elementary course.

*Leverhulme Scholarships*.—A fund endowing three scholarships of the annual value of £60 each was presented to the Society by Lord Leverhulme in 1923. Students between the ages of nineteen and twenty-two who have completed the period of practical training required for the Qualifying examination are eligible. The examination is held on the first Tuesday in July in certain centres, and entries must be received at Bloomsbury Square by June 1. The first scholarship carries with it a medal, and the second, a prize of books to the value of £10. The examination consists of papers in botany and pharmacy (two hours), chemistry and physics (two hours), and business methods (two hours).

*Manchester Pharmaceutical Association Scholarship* is open to student-associates of the Pharmaceutical Society who have been engaged for not less than three years in the pharmacy of a pharmaceutical chemist or a chemist and druggist in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of £34.

*The Petrie Trust Bursary*, of the annual value of £16 to £20, is awarded each year to a student-associate of the Society who has completed three years' apprenticeship in the city or county of Aberdeen, and has not previously studied at a school of pharmacy. Particulars may be obtained from the Secretary of the Aberdeen Pharmaceutical Association.

*The Ransom Research Fellowship* of the value of £200 per annum was founded in 1917 to promote the investigation of crude drugs, and is awarded to a pharmaceutical chemist, who must for twelve months work under the direction of the Council in the Research Laboratory or the Museums.

*The Redwood Scholarship* of the value of about £60 in cash, awarded every second year to a pharmaceutical chemist to pursue work in the Society's research laboratory.

THE CHEMISTS' AND DRUGGISTS' SOCIETY OF IRELAND.—The Haslett Gold Medal, which was presented by the late Sir James Haslett, M.P., is awarded annually to the student who takes the highest place at the Registered Druggists' examination.

THE PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and a silver medal to pharmaceutical chemists who have during the year passed the Licence examination on a first attempt and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and sixty-five in each of the three subjects; for the silver medal, 230 marks out of 300, and sixty in each of the three subjects.

THE FAIRCHILD SCHOLARSHIP, which was founded in 1904 by Fairchild Bros. & Foster. The object of the scholarship is to encourage study during apprenticeship. The examination is designed not as a test for completed studies, but to test how far the student has used his time and powers of observation during apprenticeship so as to fit himself or herself to appreciate fully the subsequent course of study. The value is £50, and, in addition, there are prizes of £5 for the best student in England, Scotland, Wales and Ireland, apart from the scholarship. The examinations take place during June, and entries should be made on, or before, June 1. The examinations are held at London, Manchester, Edinburgh, Cardiff, Dublin and Belfast, the amount over 5s. railway fare being refunded if application is made to the Secretary. The age limit is no less than 20 years on July 1, 1925, or over 22 on January 1, 1925, and all competitors must be registered students or apprentices of pharmacy. The successful student must commence his studies within the year after winning the scholarship. The subjects are: Chemistry; physics; botany; practical pharmacy and prescription-reading; business knowledge. The trustees are Mr. Peter Boa, Edinburgh; Mr. Albert Hagon, Cardiff; Mr. William Kirkby, Manchester; Mr. A. J. Phillips, London; Mr. W. F. Wells, Dublin. All communications should be addressed to the Secretary to the Trustees, Mr. Herbert Skinner, Ph.C., Albert Chambers, 64-65 Holborn Viaduct, London, E.C.

"CORNERS FOR STUDENTS" PRIZES.—THE CHEMIST AND DRUGGIST conducts a monthly competition in qualitative chemical analysis. The next series of competitions commences in October. —

### Degrees in Pharmacy

Science degrees in pharmacy are conferred by the Universities of Glasgow and Manchester. In Manchester, for the B.Sc. (Pharm.) degree, candidates must first pass the University Matriculation examination or its equivalent. They should then attend courses in chemistry, physics, botany and pharmacy, and present themselves for the Intermediate examination in the first three subjects at the end of the first year. Such candidates, before proceeding to the Final examination, must present certificates of having attended (1) during the second year courses in chemistry (advanced), botany (advanced), and pharmaceutics; (2) during the third year further approved courses in chemistry or botany, and in pharmaceutics (advanced); (3) an approved course in an arts subject, preferably French or German, and should present for the Final examination (i.) chemistry or botany, (ii.) pharmaceutics. The lecturer in pharmacognosy, *materia medica* and practical pharmacy is Mr. James Grier, M.Sc., Ph.C. The cost of a degree course varies with the subjects chosen and with the nature of the degree, but the average fees for an ordinary B.Sc. degree course amount to £37 16s. a session. Full particulars may be obtained from the Pharmaceutical Department, University of Manchester. In Glasgow, candidates must first pass the Preliminary examination. In not less than three academic years they must attend at least seven courses of instruction, of which four must be taken in the University of Glasgow. The Regulations may be obtained from J. Maclehose & Sons, 61 St. Vincent Street, Glasgow. Negotiations have been proceeding for some time between the University of London and the Pharmaceutical Society of Great Britain, with a view of establishing a degree in pharmacy; it is understood that the new degree will be known as "Bachelor of Pharmacy in the Faculty of Medicine," and that the consent of Convocation will be given to the necessary alteration of the statute regulating degrees in medicine.

## Medicine

There is general agreement, among those in a position to know, that the average medical man can make a satisfactory living without the aid of initial capital. Recent events have shown that the profession is well organised and skilfully led. Medical men have come out of a struggle with the Government on a question of Insurance dispensing terms with satisfaction to themselves; and a resolution passed, at a meeting of the British Medical Association, on the subject of payments in connection with hospital insurance schemes points to an alert attitude towards the material recompense that professional work brings. The majority of medical practitioners take up general work, but there are many other openings for those who are not attracted by this type of routine. The Army, Navy and Air Force Services absorb a certain proportion, and Colonial appointments attract others. Public health work and academic research offer their own inducements, and, finally, the vocation of a consultant is a perennial prize to men of the right type. The cost of education depends on two factors—the degree or diploma which it is desired to take and the school selected for training. A fairly exact idea of the outlay necessary may be gained by reading the section "Medical Schools" below.

The regulation of conditions for admission to the Medical Register is entrusted by law to the General Medical Council, which, by Sections 18 and 20 of the Medical Act, 1858, is empowered to require information from colleges and other bodies as to courses of study and examinations, and to report any deficiencies (or apparent deficiencies) to the Privy Council. The functions of the General Medical Council also include the duty of removing from the Register any practitioner adjudged guilty of conduct "infamous in a professional respect." Candidates for the profession are required to possess, at the outset, a general education of the standard needed for matriculation in arts or science at a British university, together with evidence of having passed an approved examination in elementary physics and elementary chemistry and of having commenced medical study, and, after registration as medical students, to take a course of study and training, extending on the average to five years, at a recognised institution. There are two types of medical qualification, the degrees bestowed by the universities and the diplomas given by such bodies as the Royal Colleges of Physicians and Surgeons.

### Preliminary Examinations

The education committee of the General Medical Council issues a list of examining bodies the examinations of which in general education fulfil the conditions laid down by the Council as to admission as a medical student (see "Registration as Medical Students"). These examinations include (1) the final arts or science degree examination of any university of the United Kingdom or of the British Dominions; (2) the matriculation examination of any university in Great Britain or of certain examining bodies in Ireland; (3) a number of school and other examinations accepted by approved universities as equivalent to their respective matriculation examinations. Any preliminary examination recognised as from January 1, 1923, must include:—(1) English; (2) elementary mathematics; (3) a language other than English; (4) an additional subject or subjects, as required by the regulations of the particular examination, to be chosen from the subjoined list, viz.: History, geography, physical science, natural science, Latin, Greek, Hebrew, French, German, or other language accepted by the University for the purpose. A Joint Matriculation Board (Secretary, 315 Oxford Road, Manchester), governs the Matriculation examinations of the Universities of Manchester, Liverpool, Leeds, Birmingham, and Sheffield. The College of Preceptors, Bloomsbury Square, London, W.C.1, holds in March and September of every year, at various centres in Great Britain, a Professional Preliminary examination for certificates recognised by the

General Medical Council and other bodies. The fee is 25s., *plus* a local fee of from 5s. to 15s. A similar examination is held by the Educational Institute of Scotland, 47 Moray Place, Edinburgh, in February, June, August and November. It should be borne in mind that the subjects which are compulsory and those which are optional differ to some extent in the requirements of the various universities and other qualifying bodies; consequently, the candidate must either matriculate at the university at which he or she intends to study or ascertain that the Preliminary examination certificate held is one that will be accepted.

### Registration as Medical Students

The way of entrance to the medical profession is laid down in "Regulations of the General Medical Council in Regard to the Registration of Medical and Dental Students" (1s., post free, from the Registrar, 44 Hallam Street, London, W.1).

The following is a summary of the regulations:—

(1) Before registration as a student every candidate shall produce evidence that he has attained the age of seventeen years.

(2) The minimum standard of general education required will be that of University matriculation or entrance examination in arts or pure science.

(3) Before registration as a student every applicant shall be required to have passed an approved examination in general education, and, in addition thereto, an examination in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

(4) A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognised by a licensing body may be admitted to the Professional examination in elementary biology immediately after his registration as a student.

The commencement of the course of professional study recognised by any of the licensing bodies should not be reckoned as dating earlier than fifteen days before the date of registration. The Registrars to whom, according to the division of the United Kingdom in which the student is training, application must be made for registration are:—

The Registrar of the General Medical Council, 44 Hallam Street, Portland Place, London, W.1.

The Registrar of the Scottish Branch Council, 20 Queen Street, Edinburgh.

The Registrar of the Irish Branch Council, 35 Dawson Street, Dublin.

The General Medical Council enjoins that in every course of professional study and examination, which must occupy not less than five academic years, the following subjects shall be comprised:—

(1) *Elements of General Biology*, including practical work and an introduction to the study of embryology; (2) *Chemistry, Physics, and Biology* in their application to medicine; (3) *Human Anatomy and Human Physiology*, including dissection, histology, elements of human embryology, bio-chemistry and bio-physics; (4) *Elementary Bacteriology*; (5) *Pathology*; (6) *Pharmacology and Materia Medica*, including pharmacological chemistry; (7) *Forensic Medicine, Hygiene, and Public Health*; (8) *Medicine*, including applied anatomy and physiology, clinical pathology, and therapeutics; (9) *Surgery*, including applied anatomy and physiology, and clinical pathology; (10) *Midwifery and Diseases of Women*.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and this principle is extended to graduates in arts or science at approved universities. No general exemption of this kind is given to registered chemists and druggists except as regards training in practical pharmacy. The preliminary examination must have been of the standard given in the regulations, but the colleges and universities consider applications for exemption from any part of the medical examinations when such subjects as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to the studies required, and the schools of medicine arrange their courses in conformance with such requirements.

### University Degrees

In the following paragraphs we indicate concisely the conditions framed by the universities of the places named for degrees in medicine and surgery (M.B., Ch.B., or the equivalent degrees). For other and higher degrees further courses of study and payment of fees are requisite.

ABERDEEN.—The degrees are conferred together, and cannot be taken separately. The curriculum extends over a period of not less than five years, during three years of which the candidate must attend at a recognised hospital. The fee for the two degrees is £34 13s., payable in four instalments. Bursaries, scholarships and fellowships to the annual value of over £1,180 are obtainable. Regulations may be seen in the calendar of the University, or may be obtained from the Secretary.

BELFAST.—Three academic years at least, out of the five prescribed for the curriculum, must be passed in the University. The examination fees amount to £18 18s. The Dean of the Faculty of Medicine is Professor W. St. Clair Symmers, M.B.

BIRMINGHAM.—The course extends over five years, and there are five examinations, the fees for which, together with the fee for matriculation, amount to £22. Several scholarships are available. As a rule, the first four years of the course must be spent in the University, the minimum being three years. Dean of the Medical Faculty, Mr. W. F. Haslam, M.B., University Medical Buildings, Edmund Street.

BRISTOL.—There are three examinations, the total fees for qualifying (including graduation fee) amounting to £27 16s. The curriculum occupies about five years, three of which must have been passed in Bristol. Particulars of scholarships and prizes are given in the University (Faculty of Medicine) prospectus. Registrar, Mr. J. Rafter, M.A.

CAMBRIDGE.—Students who have not graduated in Arts are required to pass the Previous examination or its equivalent before proceeding to the three examinations for the M.B. degree. The respective fees for these three examinations are £5 5s., £6 6s., and £10 10s. The degree fees amount to £10 10s. A thesis must be composed by each candidate, and must be publicly read (or such portion of it as the Regius Professor shall direct) by the author. There is no separate examination for the B.Ch. degree. The Registry is Mr. J. N. Keynes, Sc.D., Pembroke College.

DUBLIN.—Candidates for the degrees in medicines, surgery and obstetric science must be of B.A. standing and must have completed five years in medical studies. The fees for the licences amount to £17. Registrar, Dr. A. C. O'Sullivan, Trinity College.

DURHAM.—There are four examinations for the M.B., B.S., degrees, and the course of study extends over five years, one of which must be spent at the University's College of Medicine. The fees for matriculation and examination amount to £32. Numerous scholarships and prizes are offered. Full information may be obtained from the Registrar, University of Durham College of Medicine, Newcastle-upon-Tyne.

EDINBURGH.—The course for the degrees of M.B. and Ch.B., which are not conferred separately, extends over five years, clinical study at a recognised hospital for nine months being compulsory. Candidates must also attend for three years at a recognised hospital accommodating not fewer than eighty patients, and for not less than two years at the University. There are four examinations,

the fees amounting to £34 13s. Several scholarships, bursaries and prizes are offered for competition. Dean of the Faculty of Medicine, Professor Lorrain Smith, M.D.

GLASGOW.—There are four examinations. The period of study prescribed is five years, with specific regulations as to the lengths of the various courses of instruction. The fees for the degrees of M.B., Ch.B., amount to £34 13s. Several bursaries and prizes are open to competition. The Dean and Adviser of Studies is Professor E. P. Cathcart, M.D., University of Glasgow.

IRELAND.—The National University of Ireland confers the M.B., B.Ch., and B.A.O. degrees (simultaneously) after passing four examinations during a minimum period of five years' study. Particulars may be obtained from the Registrar, National University, Dublin.

LEEDS.—There are three examinations, and the course of study extends over five years. Attendance at an approved hospital for at least two and a half years is obligatory. The matriculation and examination fees amount to £22. Dean of the Faculty of Medicine, Professor J. K. Jamieson, M.B., C.M.

LIVERPOOL.—The curriculum extends over five years, two of which must be passed in the University. There are three examinations, with a fee of £5 each, and an admission-fee of £5. Several fellowships, scholarships and prizes are available. Dean of the Faculty, Dr. R. E. Kelly.

LONDON.—The normal course of study extends over five and a half years, and there are three examinations, the second of which is divided into two parts. The examination fees for the double degree amount to £31 10s. A large number of institutions in the United Kingdom and the Colonies is recognised for teaching and giving certificates, and various concessions are granted in respect of examinations already passed at recognised institutions. There are several scholarships and research grants available. Internal and external students should apply respectively to the Academic Registrar and the External Registrar, University of London, South Kensington, S.W.7.

MANCHESTER.—Four examinations for the two degrees, extending over not less than five years, must be passed. Two of these years must be spent in the University. The fees for the four examinations and the degrees amount to £42. Several scholarships, exhibitions and other competitive prizes are offered to students. Information is obtainable from Professor Stopford, Dean of the Medical Faculty (as to classes), and the Internal Registrar (as to examinations).

OXFORD.—The regulations stipulate that candidates must hold the B.A. degree as a prerequisite. Two examinations are held for the degree of B.M.; the degree of B.Ch. is granted with that of B.M. after passing the second examination. The Dean of the Faculty of Medicine is Dr. E. W. Aimley Walker, Department of Medicine, University Museum; and the examination statutes are published by the Clarendon Press.

ST. ANDREWS.—The course for the M.B., Ch.B. degrees (which are not separable) extends over at least five years; of this period, two years must be spent in attendance at the University. The nature of the studies as a whole is laid down in the prospectus of the Faculty of Medicine. There are four examinations, the fees amounting to £34 13s. Dean of the Faculty, Professor James Charteris, M.D., Medical School, Dundee; Secretary of the University, Mr. Andrew Bennett.

### To qualify as a MEDICAL PRACTITIONER

- (1) Pass a recognised preliminary examination.
- (2) Produce evidence of having commenced study at an approved institution, and be registered as a student by one of the Registrars of the General Medical Council.
- (3) During a curriculum of not less than five years, pass, at proper intervals, the necessary examinations.

**SHEFFIELD.**—There are four examinations for the M.B., Ch.B. degrees, the curriculum occupying five academic years. Candidates who are referred in the Final examination must produce evidence of having received subsequent instruction satisfactory to the Faculty before entering for re-examination. The examination fees amount to £18. Several scholarships are available. Dean of the Faculty, Professor J. S. C. Douglas; Registrar of the University, Mr. W. M. Gibbons, M.A.

**WALES.**—The constituent colleges are Aberystwyth, Bangor, Cardiff, and Swansea. Apply to the Registrar, University Registry, Cathays Park, Cardiff.

#### Medical and Surgical Diplomas M.R.C.S. ENG. AND L.R.C.P. LOND.

The Royal College of Physicians of London and the Royal College of Surgeons of England (known as "the Conjoint Board") grant a joint diploma (the "Double Qual.") for registration as a general medical practitioner. There are two professional examinations during the five years' curriculum subsequent to registration as a medical student.

The subjects of the *First Professional Examination* are:—Section I, (a) Anatomy, including histology and embryology; (b) Physiology, including bio-chemistry. Section II, Pharmacology, practical pharmacy, and *materia medica*. Candidates may present themselves for the two sections together or separately, but they must take Parts (a) and (b) of Section I together until they have passed in one or both parts. Candidates will not be allowed to pass in one part unless they obtain at the same time at least half the number of marks required to pass in the other part. Section II may be passed at any time before the candidate enters for the Final examination. Before admission to the First examination, candidates must produce evidence of having attended:—For Section I: (1) Courses of instruction in anatomy, including embryology, during five terms, during which they must have dissected the whole body; (2) courses of instruction in physiology, including general biology, bio-chemistry, and bio-physics, during five terms; (3) a course of instruction in histology. For Section II: Courses of instruction in pharmacology, practical pharmacy, and *materia medica*. The fee for the whole examination is £10 10s.

The subjects of the *Final Professional Examination* are:—Section I, (a) Pathology, including morbid anatomy, morbid histology, and clinical pathology; (b) Bacteriology. Section II, Part I, Medicine, including medical anatomy, forensic medicine and public health. Part II, Surgery, including surgical anatomy and the use of surgical appliances. Part III, Midwifery and gynaecology. Candidates may take Sections I and II, and the three parts of Section II separately, or they may present themselves for the whole examination at one time. They will be required to produce evidence of having completed courses of study in pathology (including morbid anatomy and histology), *post-mortem* work, clinical pathology, bacteriology, clinical medicine, practical surgery (including mechano-therapeutics), forensic medicine, mental diseases, public health, anaesthetics, midwifery and gynaecology, applied anatomy and applied physiology, and operative surgery. Certificates of having received certain specified hospital instruction must also be presented. Re-examination in referred subjects cannot take place within three months of the date of rejection. The fees for this examination amount to £31 10s.

Special regulations are provided for cases in which students have passed examinations in certain subjects elsewhere. Synopses of the examination can be obtained from the Secretary of the Conjoint Board, 8-11, Queen Square, Bloomsbury, London, W.C.1.

#### SCOTTISH TRIPLE QUALIFICATION

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and Surgeons, Glasgow, grant three diplomas ("Triple Qual.") jointly entitling the holder to registration as a general medical practitioner. The four examinations are held in Edinburgh, Glasgow, or both cities. The course of study must occupy not less than five years, and the examination fees amount to £30. Full particulars may be obtained from Mr. D. L. Eadie, 49 Lauriston Place, Edinburgh, or Mr. W. Hurst, 242 St. Vincent Street, Glasgow.

#### IRISH DOUBLE QUALIFICATION

Particulars may be obtained on application to Mr. Alfred Miller, Royal College of Surgeons, Stephen's Green, Dublin.

#### LONDON APOTHECARIES' DIPLOMA

The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery, and midwifery. There are two examinations, Primary and Final, and the course of study extends over five years. The fee for the Primary examination is £5 5s.; for the Final examination a fee of £21 is payable (£15 15s. if a fee of £5 5s. has been paid for the Primary examination). Application may be made to Mr. Frank Haydon, L.R.C.P. Lond., Secretary, Society of Apothecaries of London, Water Lane, E.C.4.

#### DUBLIN APOTHECARIES' DIPLOMA

The Apothecaries' Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the requisite examinations. Particulars may be obtained from the Registrar of the Apothecaries' Hall, 95 Merrion Square.

#### Medical Schools

The following are the principal medical schools in the United Kingdom:

##### LONDON

The following medical schools are constituents of the London University:

*Charing Cross Hospital Medical School*, Chandos Street, W.C.2.—Dean, Dr. W. J. Fenton; Secretary, Mr. F. Noakes.

*Guy's Hospital*, London Bridge, S.E. 1.—The fees for a five-years' course, as given in the prospectus, amount to approximately £245. Several scholarships are obtainable by students, and a residential college (facing the hospital) is open for those who desire such accommodation. Communications should be addressed to the Dean of the School.

*King's College, Faculty of Science, Medical Division*, Strand, W.C. 2.—Students are prepared for the first two medical examinations of the University of London or other universities, or the first two of the Conjoint Board. Fees:—First M.B. or conjoint course, £36 15s. per annum; second course, £42 per annum. Dean of the Faculty, Professor E. Barclay-Smith, M.D.

*King's College Hospital Medical School*, Denmark Hill, S.E.5.—Composition-fee for the University of London course or the Conjoint Board course, £210; this fee includes three years' tuition at King's College and at the Hospital. Arrangements may also be made for payment by instalments. Several scholarships and prizes are available through examination. Dean, Dr. H. Willoughby Lyle. The School calendar, giving particulars as to fees, may be obtained on application to the Secretary, Mr. S. C. Ranner, M.A.

*London Hospital Medical College*, Turner Street, E. 1.—Entrance-fee, £21; annual fee, £42. Several scholarships and prizes are open to competition. Dean, Professor W. Wright, M.B.; Secretary, Mr. E. J. Burdon.

*London (Royal Free Hospital) School of Medicine for Women*, Hunter Street, W.C. 1.—Composition-fee (payable in five instalments) for the University of London degrees or the Conjoint Board qualification, £240. Dean, Miss Aldrich-Blake, M.D., M.S. A list of scholarships and other particulars may be obtained from the Warden and Secretary, Miss L. M. Brooks.

*Middlesex Hospital*, Union Street, W. 1.—The school, which includes the Bland-Sutton Institute of Pathology and the cancer-research laboratories, is fully equipped for teaching the entire medical curriculum; special courses are given in the higher degrees and diplomas, particularly the F.R.C.S. Eng. and diplomas in Public Health. Special attention is given to the co-ordination of the work in the laboratories with that in the wards. Fees: Entrance-fee, £15 15s.; four annual instalments of £42; thereafter at the rate of £21 per annum until qualified. Scholarships and prizes exceeding in all £1,000 are awarded annually, and there are other attractive features of the hospital courses. An illustrated prospectus may be obtained, on application, from the Dean of the School, Mr. A. E. Webb-Johnson, M.B., F.R.C.S.

*St. Bartholomew's Hospital and College*, Smithfield, E.C. 1.—Composition-fee, £231 (or five annual instalments of £50 8s. each). The total value of the scholarships and prizes awarded annually is over £1,000. Dean, Dr. T. W. Shore.

*St. George's Hospital*, Hyde Park Corner, S.W. 1.—Composition-fee (first year), £36 15s.; (second to fifth years), £42 each. Courses in preliminary and intermediate subjects are taken at King's College. Entrance scholarships are awarded annually, and there are several exhibitions and prizes. Dean, Dr. J. A. Torrens.

*St. Mary's Hospital Medical School*, Cambridge Place, W.2.—Composition-fee for the curriculum (time-limit six years), £200—if paid in four instalments, £210. Entrance scholarships, together with several studentships and prizes, are awarded annually. Clinical units in medicine and surgery were established in 1920, and have been recognised by the Government. Dean, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

*St. Thomas's Hospital Medical School*, Albert Embankment, S.E.1.—There are five entrance scholarships; other prizes are open for competition throughout the student's career. Annual fee (payable at the beginning of each year), £50. Further information may be obtained from the Secretary, Dr. A. Elliot.

*University College Hospital Medical School*, Gower Street, W.C.1.—The composition-fee for the final degree or Conjoint Board examination course amounts to £117 12s. Several scholarships and exhibitions are offered by competition. Dean, Sir George Blacker, M.D.; Secretary, Mr. G. E. Adams.

*Westminster Hospital Medical School*, 12 Caxton Street, S.W.1.—Entrance-fee, £10 10s.; annual composition-fee (payable in advance), £36 15s. Scholarships and prizes are awarded over a considerable period of the curriculum. Preliminary and intermediate studies are taken at King's College. Dean, Dr. A. S. Woodward; Secretary, Major J. Burke.

#### OUTSIDE LONDON

*ABERDEEN*.—*University Faculty of Medicine*.—The total cost of obtaining the M.B., Ch.B. degrees is estimated at £240, including hospital fees, class fees, and degree fee. Clinical study is available at the Royal Infirmary and other local institutions. Scholarships and bursaries are open to competition. Applicants should communicate with the Secretary, Entrance Board, 81 North Street.

*BELFAST*.—*Queen's University of Belfast*.—Students are prepared, during a five-years' course, for the degrees of M.B., B.Ch., and B.A.O. The class fees for the first four years amount to approximately £83. Particulars may be obtained on application to the Secretary to the General Board of Studies.

*BIRMINGHAM*.—*University Faculty of Medicine*.—The fees for a five-years' course (including examination fees) are estimated at £199. In addition, the student is required to provide himself with books and instruments. Full information is obtainable at the Dean's Office, University Medical Buildings, Edmund Street.

*BRISTOL*.—*University Faculty of Medicine*.—The inclusive fee for the curriculum is £215 5s., payable in annual instalments. The Faculty also prepares students for the diploma examinations of other licensing bodies; such students are not required to matriculate. Dean, Professor E. Fawcett, M.D.; Registrar, Mr. J. Rafter, M.A.

*CAMBRIDGE*.—Clinical lectures and practical instruction are given, by arrangement with the University, at Addenbrooke's Hospital. Apply to Mr. J. N. Keynes, Sc.D., Registrar of the University, for particulars.

*CARDIFF*.—*The University College of South Wales and Monmouthshire* is a constituent college of the University of Wales. Application for particulars of the course of study may be made to the Registrar, University College, Newport Road.

*CORK*.—*University College* is a constituent college of the National University of Ireland.

*DUBLIN*.—*Royal College of Surgeons' Schools of Surgery* are attached to the Royal College of Surgeons. A syllabus may be obtained from Mr. Alfred Miller, Registrar, Royal College of Surgeons, Stephen's Green.

*School of Physic, Trinity College*.—The total cost of qualifying, including examination-fees, is given in the calendar as £146 3s. Registrar, Dr. A. C. O'Sullivan.

*University College*.—A constituent college of the National University of Ireland.

*DURHAM*.—See "Newcastle-upon-Tyne."

*EDINBURGH*.—*University Faculty of Medicine*.—The fees for each subject range from £1 11s. 6d. to £6 6s. per session. A perpetual ticket for practice at the Royal Infirmary costs £12 in one payment, or £12 12s. if paid in instalments. Dean, Professor Lorrain Smith, M.D.

*School of Medicine of the Royal Colleges*.—The courses of study are suited to University and other qualifications. The minimum cost of education for the Triple Qualification, including examination fees, is about £170, payable by instalments. Scholarships and bursaries are available by competition. Dean, Dr. W. D. D. Small, 11 Bristol Place, to whom communications respecting the school should be addressed.

*GALWAY*.—*University College*.—A constituent college of the National University of Ireland.

*GLASGOW*.—*The University Faculty of Medicine*.—The division of studies is similar to that adopted at Edinburgh, and the fees are about equal. Dean, Professor Cathcart; Registrar of the University, Mr. R. Brough.

*The Anderson College of Medicine*, Dumbarton Road, W. Students are prepared for University and other qualifications. A copy of the College calendar will be sent on receipt of a postcard addressed to the Secretary of the Medical Faculty at the College.

*St. Mungo's College*, 86 Castle Street. The total fees payable for preparation for a Scottish or English qualification amount to rather more than £100. Secretary, Mr. T. B. Ferguson, 97 West Regent Street.

*LEEDS*.—*University Faculty of Medicine*.—The composition-fee for the first examination in medicine or dentistry is £41. For the remaining terms of study the composition-fee is £174, payable in advance, or £190 if paid in instalments. The total cost of education for the M.B. degree is estimated at £300. Dean of the Faculty, Professor J. K. Jamieson.

*LIVERPOOL*.—*University Faculty of Medicine*.—The composition-fees for a degree course are estimated in the University calendar at £196, in addition to examination fees. Dean of the Faculty, Professor R. E. Kelly.

*MANCHESTER*.—*University Faculty of Medicine*.—The composition-fees for the studies for the M.B., Ch.B. degrees (including examination fees) are estimated at £276 14s. 6d. Courses are also available for other degrees and diplomas. Particulars will be found in the calendar of the University, or may be obtained on application from Professor Stopford, M.D., Dean of the Medical Faculty (for classes), and the Internal Registrar (for examinations).

*NEWCASTLE-UPON-TYNE*.—*University of Durham College of Medicine*, Northumberland Road.—A composition ticket for a complete course of lectures and laboratory work may be obtained by payment of £122 in advance, or at a slightly higher cost if purchased by instalments. For particulars of the courses of instruction, apply to Professor Howden, Secretary of the College.

*OXFORD*.—Courses of practical instruction are given, by arrangement with the University, at Radcliffe Infirmary. Apply to the Dean of the Faculty of Medicine (Dr. E. W. Ainley Walker), University Museum, for particulars as to the curriculum.

*ST. ANDREWS*.—*University Faculty of Medicine*.—The inclusive fee for five-years' University and clinical courses for the M.B., Ch.B. degrees is £182, payable in instalments. Advisers of Studies, Professor J. Charteris, M.D., Dundee, and Professor D. Waterston, M.D., Bute Medical Buildings, St. Andrews.

*SHEFFIELD*.—*University Faculty of Medicine*.—A five-years' course is provided for. The composition-fee is £190, payable in five instalments. Dean, Professor J. S. C. Douglas; Registrar of the University, Mr. W. M. Gibbons, M.A.

*SWANSEA*.—*University College*.—A constituent college of the University of Wales. Registrar, Mr. Edwin Drew.

## Dentistry

By the Dentists Act, 1921, the regulation of the profession of dentistry is vested in the Dental Board of the United Kingdom. The events of the past twelve months have shown that the Board is in a strong position, both financially and in the sphere of moral authority. Its ample funds have been to some extent applied for the benefit of dentists in the shape of post-graduate lectures, and the numerous disciplinary cases that have arisen show that the policy of the Board is to insist on a high standard of professional conduct. The period of transition that came in with the passing of the 1921 Act may, for practical purposes, be now regarded as ending. The section "Dental Instruction," on the next page, suggests that a medical diploma is frequently taken simultaneously with a dental qualification, giving the dental surgeon a standing of value in high-class practice.

### Dental Training

The registration of dental students is regulated (as explained in the preceding paragraph) by the Dental Board of the United Kingdom. The candidate must (1) be not less than seventeen years of age, (2) have passed a recognised Preliminary examination, and (3) have commenced professional study, by pupilage or otherwise. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in mechanical dentistry. (A syllabus for students in dental mechanics is issued by the British Dental Association, 23 Russell Square, London, W.C. 1.) No portion of practical instruction which is taken prior to the date of registration may be reckoned as a portion of the four years of professional study. It is recommended that instruction in dental mechanics be taken at recognised dental hospital and school. If any part of such instruction is taken by the candidate as a pupil with a registered dentist, the time required to be devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school. Examination for a degree or licence in dentistry or dental surgery includes the following subjects:—

(1) Chemistry, Physics, and Biology, in their bearing on medicine and dentistry; (2) Human Anatomy and Physiology; (3) General Pathology, including bacteriology; (4) Medicine and Surgery; (5) Dental Anatomy and Physiology, Dental Pathology, Dental Surgery (including orthodontics), Dental Materia Medica and Therapeutics, and Dental Mechanics and Dental Metallurgy; (6) Practical Dental Surgery; (7) Practical Dental Mechanics and Metallurgy; (8) Anaesthetics, general and local, employed in dental practice.

Women are not admitted, at present, as students to certain of the dental schools and general hospitals. The L.D.S. of the Royal College of Surgeons of England is more valued than a similar qualification obtained elsewhere. The curriculum of the College is as follows:—

The First Professional Examination consists of (1) dental mechanics, (2) dental metallurgy, and (3) (a) general anatomy and physiology, (b) dental anatomy and physiology, and is held three times a year. Candidates may present themselves for the several parts of the First Professional examination together or separately, but before admission to any part of the examination they must produce evidence of having passed the required Preliminary examination in general education and the required pre-medical examination or a certificate of having been registered as a medical or dental student. Candidates for Part 1 must give twenty-one days' notice in writing, and forward certificates of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of dental mechanics and of having attended courses of lectures and practical work. They must also provide themselves with certain instruments. Similar regulations apply to Parts 2 and 3.

The Second Professional Examination consists of (1) general surgery and pathology, (2) dental surgery and pathology, and practical dental surgery. Six months must elapse between Part 1 of this and the first examination, and certificates of attendance at certain courses must be produced. Before admission to Part 2, candidates must be certified as having attended studies at a recognised institution for two years.

The fee for the diploma is £21, payable by instalments. Inquiries should be addressed to the Director of Examinations (Mr. F. G. Hallett), Examination Hall, Queen Square, London, W.C.1. Similar conditions apply to the qualifications of the following colleges:—

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The course of study must occupy at least four years, and not less than three years must be spent at a recognised school. The subjects are taken in two examinations. The examination fees amount to £15 15s. Information may be obtained from Mr. D. L. Eadie, Clerk to the College, 49 Lauriston Place.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The general regulations are similar to those obtaining at Edinburgh. Candidates for the Licence must be twenty-one years of age. The fees, including that for the Registration examination, amount to £19 19s. Particulars are obtainable from Mr. W. Hurst, Secretary of the Faculty, 242 St. Vincent Street.

ROYAL COLLEGE OF SURGEONS IN IRELAND, Stephen's Green, Dublin.—The Registrar will furnish particulars on application.

### University Degrees and Diplomas

BELFAST.—Five years' study is compulsory for students for the degree of B.D.S., and four years' for candidates for the licence diploma. Regulations and other information may be obtained from the Secretary to the General Board of Studies, Queen's University.

BIRMINGHAM.—The course for the diploma (L.D.S.) occupies four years, three of which must be University years; that for the B.D.S. degree covers five years. The B.D.S. degree cannot be conferred until twelve months after the diploma (or that of an approved body) has been obtained. Dean of the Dental Hospital, Mr. W. T. Madin, B.D.S.; Registrar of the University, Mr. J. H. Costain.

BRISTOL.—The curriculum for the degree extends over five years, with exemptions in favour of students holding an approved certificate in certain subjects. Study for the diploma must occupy four years. There are four examinations for the degree and four for the diploma, the fees amounting respectively to £26 5s. and £23 2s. Registrar, Mr. J. Rafter, M.A.

DUBLIN.—Four years must be spent in study for the degree of bachelor in dental science after obtaining the B.A. degree. Application for details should be made to the Registrar of the School of Physic, Trinity College, Dublin.

DURHAM.—Four years' professional study and a three-years' pupilage in mechanical dentistry are required before the licence in dental surgery is obtainable. There are four examinations. Fee for examinations and licence, £15. Particulars may be obtained on application to the Secretary of Examinations, Durham College of Medicine, Newcastle-upon-Tyne.

IRELAND.—The course of study for the B.D.S. degree of the National University of Ireland extends over four years. Constituent colleges, Dublin, Cork and Galway.

LEEDS.—There are three examinations, in addition to a prescribed course of study extending over five years for the degree and four years for the diploma. The examination and degree fees together amount to £22; those for examinations and diploma to £20. Dental Warden, Mr. W. S. Thornburn, L.D.S.; Registrar of the University, Mr. A. E. Wheeler, M.A.

LIVERPOOL.—There are four examinations for the degree of B.D.S. or for the licence in dental surgery (L.D.S.), the fees amounting to £15. Four years' study is required for the licence and five years' for the degree. Dean of the Medical Faculty, Professor R. E. Kelly, M.D.

LONDON.—The degree of B.D.S. is conferred after matriculation and four subsequent examinations. The curriculum extends over five years, and the examination fees amount to £27 6s. For particulars apply to the Academic Registrar (if an internal student), University of London, South Kensington, S.W.7.

MANCHESTER.—The examination fees for the B.D.S. (four examinations), together with the conferment fee, amount to £28 7s. The curriculum extends over five years. The diploma course covers four years, with

examination and conferment fees amounting to £23 2s. Inquiries regarding examinations should be addressed to the Internal Registrar of the University, Mr. Norman Smith, M.Sc.

ST. ANDREWS.—The University grants a diploma in dental surgery (L.D.S.), after four years' study and four examinations. Fee, £10 10s. For particulars apply to the Secretary, University College, Dundee.

SHEDFIELD.—Five years' study is required for the degree (B.D.S.), and four years' for the diploma. Registrar of the University, Mr. W. M. Gibbons, M.A.

### Dental Instruction

The following are the chief schools in the United Kingdom for instruction in the science and practice of dentistry:—

#### LONDON

*Charing Cross Hospital Medical School*, Chandos Street, W.C.2.—The cost of the curriculum is payable by a composition-fee or in instalments. Dean, Dr. W. J. Fenton. *Guy's Hospital School (Dental Department)*, London Bridge, S.E. 1.—Practical training is provided in the hospital. The cost of a four years' course, including licence examination fees, is given in the prospectus as £404 14s. 6d. The course can be extended to six years, so as to comprise diplomas or degrees in medicine and surgery. The total cost of this curriculum is estimated at £579 2s. 6d. Particulars may be obtained from Professor T. B. Johnston, M.B., Dean of the School.

*King's College*, Strand, W.C.2.—During the past year the authorities of King's College and those of King's College Hospital have decided to establish a dental school. Under the new scheme the College will provide tuition in science, anatomy, physiology and pharmacology. Dean of the Faculty of Medicine, Professor E. Barclay-Smith, M.D.

*King's College Hospital Dental School*, Denmark Hill, S.E.5.—Professional instruction is given in association with the syllabus of King's College. Dental students may also attend other departments bearing on their work—e.g., those devoted to diseases of the throat. The dental out-patient department has been reopened and renovated. Director of Dental Studies, Mr. Alexander Livingston, M.B.; Secretary of the School, Mr. S. C. Ranner, M.A.

*London Hospital Dental School*, Turner Street, E.1.—Full course (including dental mechanics) for L.D.S. diploma, £240. Six years' course for medical and dental qualifications, £360. Inquiries should be addressed to the Dean (Professor W. Wright, M.B.).

*London (Royal Free Hospital) School of Medicine for Women*, Hunter Street, W.C.1. Students can pursue a course in the studies not taken at the School at either the Royal Dental Hospital of London or the Dental Department of University College Hospital. Dean, Miss L. B. Aldrich-Blake, M.D.; Warden and Secretary, Miss L. M. Brooks.

*Middlesex Hospital Medical School*, Union Street, W.1.—The hours of lectures and classes are arranged to fit in with courses of instruction at the Royal Dental Hospital of London. The dental and medical courses can to a great extent be taken simultaneously: in addition, special classes are arranged for dental students only. The Middlesex School fee for a two-years' course is £63, payable in two annual instalments. Other fees amounting to £5 5s. are payable with the first instalment. Dean,

Mr. A. E. Webb-Johnson, M.B.; Secretary, Mr. R. A. Foley.

*Royal Dental Hospital of London School of Dental Surgery*, Leicester Square, W.C.2.—The cost of the full course, including the fee at a general hospital and examination fees for the L.D.S. diploma, is estimated at £354. Particulars of several scholarships are given in the calendar of the School. The winter session opens on October 1. Examinations for the entrance scholarship are held on September 12. Dean, Mr. H. Stobie.

*St. Bartholomew's Hospital (Dental Department)*, Smithfield, W.C.1.—Four short courses of demonstrations are given during the School year. Dean of the Medical School, Dr. T. W. Shore.

*St. George's Hospital*, Hyde Park Corner, S.W.1.—Two annual composition-fees of £21 are charged for hospital practice and courses of lectures on medicine and surgery for the L.D.S. examination. Dean of the Medical School, Dr. J. A. Torrens.

*St. Mary's Hospital*, Paddington, W.2.—A composition-fee of £73 10s. is charged for a two-years' course if paid on entry. Dean of the Medical School, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

*University College Hospital Dental School*, Great Portland Street, W.1.—Composition-fees: Full dental course, £236; six-years' course, comprising dental curriculum and curriculum for the M.R.C.S., L.R.C.P. diplomas, £416. Sub-Dean, Mr. A. B. G. Underwood, M.B., L.D.S.

*Westminster Hospital*, 12 Caxton Street, S.W.1.—Fee for general surgical practice and lectures for the R.C.S. dental diploma (payable in advance), £70 (or two payments of £35 each). Special practice and lectures may be obtained at the Royal Dental Hospital (£70) or the National Dental Hospital (£40). Dean of the Medical School, Dr. A. S. Woodward.

#### OUTSIDE LONDON

*BELFAST—Queen's University Faculty of Medicine*.—The three terms of the session commence respectively in October, January and April. The class-fee in each subject is £2 2s. a term. Entrance-forms and other information may be obtained by applying to the secretary to the General Board of Studies.

*BIRMINGHAM—University School of Dentistry*.—The courses of instruction qualify for the diplomas in dental surgery of all licensing bodies, as well as for the degrees and diploma of Birmingham University. The cost (including examination fees) of preparation for the B.D.S. degree and the L.D.S. diploma is estimated at £188 and £144 respectively. Dean of the Dental Hospital, Great Charles Street, Mr. W. T. Madin, B.D.S.

*BRISTOL—University Faculty of Medicine (Dental Surgery)*.—The inclusive cost of the curriculum is estimated at £225 15s. in the case of the degree, and £210 for diploma students. Registrar of the University, Mr. J. Rafter, M.A.

*DUBLIN—School of Dental Science, Trinity College*.—The total cost of obtaining the B.Dent.Sc. degree is given in the regulations as £309. For details, apply to the Registrar of the School of Physic.

*Royal College of Surgeons Schools*.—The College grants a diploma in dental surgery. Registrar, Mr. Alfred Miller.

*DUNDEE—School of Dental Surgery*, 27 South Tay Street. Dean, Mr. W. G. Campbell, M.B., C.M., L.D.S.

### TO QUALIFY AS A DENTIST

- (1) Pass a recognised preliminary examination.
- (2) Register as a student at the Dental Board Office, 44 Hallam Street, London, W. 1. Instruction in mechanical dentistry may be taken prior to registration.
- (3) Take a four or five years' curriculum as provided in the regulations.
- (4) Pass, at proper intervals, the requisite examinations for the degree or diploma sought.

DURHAM.—See "Newcastle-upon-Tyne."

EDINBURGH.—*School of Medicine of the Royal Colleges.*—Communications should be addressed to the Dean of the School, 11 Bristo Place.

*Incorporated Dental Hospital and School*, 31 Chambers Street.—Hospital practice and clinical instruction are taken at the Royal Infirmary. The minimum cost of the curriculum and examinations for the R.C.S. Edin. diploma is estimated at £118 16s., plus £85 1s. for mechanical training. The fees for the triple qualification (see "Medicine"), in addition to the L.D.S., amount to £197 3s. 6d. Dean of the School, Mr. W. Guy, F.R.C.S., L.D.S.

GLASGOW.—*Incorporated Dental Hospital and School*, 158 Renfrew Street, Communications regarding the School should be addressed to the Dean, 15 Dalhousie Street.

LEEDS.—*Dental Department of the University.*—The cost of education for the course for the degree of the University is given in the University Calendar as £382 (£357 for the diploma). Registrar of the University, Mr. A. E. Wheeler.

LIVERPOOL.—*University School of Dental Surgery.*—Candidates are prepared for the licence (L.D.S. Liverpool), the degree of B.D.S., and the higher degree of M.D.S. The composition-fee for the B.D.S. is £237; that for the L.D.S. (Liverpool) is £199. Director of Dental Education, Professor W. H. Gilmour, M.D.S.

MANCHESTER.—*Dental Department of the University.*—Students are prepared for the B.D.S. of the University, the diploma of the University, or the L.D.S. diploma of the R.C.S. Eng. The composition fee for the degree of B.D.S. is £97 13s., and that for the University diploma is £87 3s. The Dean of the Medical Faculty of the University answers inquiries concerning classes.

*Dental Hospital of Manchester, Oxford Road, and Manchester Royal Infirmary.*—Both these institutions are recognised by the University for the purposes of dental training. The total fees payable to the University, the Hospital, and the Infirmary for courses of study, chemicals, apparatus, examinations, and the conferment of the degree or diploma are approximately as follows: For the B.D.S. Manch., £311; for the L.D.S. Manch., £255; for the L.D.S., R.C.S. Eng., £264. The required outfit in each case costs about £40 in addition. Dean of the Dental Hospital, Mr. J. H. Mathews, L.D.S.

NEWCASTLE-UPON-TYNE.—*University of Durham College of Medicine (Dental Department).*—Composition-fee (diploma course), £70 17s.; infirmary fee (three years), £46. For particulars of the courses of instruction apply to Professor Howden.

*Dental Hospital and School*, Handyside's Buildings, Percy Street.—Composition-fee for dental lectures, demonstrations, and hospital practice, £60 4s. The College of Medicine, the Dental Hospital, and the Royal Victoria Infirmary are situated close to each other, and the entire diploma course can be taken at a total cost of about £170. Vice-Dean, Mr. J. Coltman.

ST. ANDREWS.—*University College, Dundee, Medical School.*—Composition-fees for courses for the L.D.S. diploma of the University are given in the University prospectus as amounting to £100 14s. Particulars may be obtained from the Secretaries, A. Tosh & Son, 11 Reform Street, Dundee.

SHEFFIELD.—*Dental Department, University Faculty of Medicine.*—Students are prepared for the degree (composition fee £125, payable instalments) or the diploma (composition fee £100) of the University. Courses extend to five and to four years respectively. Registrar, Mr. W. M. Gibbons, M.A.

*Popular Science Talks.* 9 by 6 in. Pp. 216. \$1. Philadelphia College of Pharmacy and Science, 145 North Tenth Street, Philadelphia, Pa. [The Philadelphia College of Pharmacy, in the course of its propaganda of educating the public to an appreciation of science and pharmacy, had a series of popular lectures delivered which are here printed in book form. Chemists who are asked to deliver popular science lectures will find them suitable as a basis. The series is to be continued.]

## Science

Academic and industrial chemistry represent the two extremes of chemical science. The student of pure chemistry usually begins and ends in the collegiate laboratory. The works chemist may begin anywhere and attain anything if he can combine scientific common sense with business ability, for the rich rewards in commerce go to those who make things pay, either by savings in production or being a little in front with improved products. Research is the common ground on which the academic and commercial chemistry meet, though the former ever seeks to elucidate principles and the latter to improve detail. Unfortunately the work of most professional chemists tends to specialisation, so that their training and thought become bound by routine, hence their poor economic rewards. The technical chemist has a bright future before him, for success in manufacture is becoming more and more dependent upon his ability to make processes pay by saving time and material and finding new uses for "waste" products. The demand will inevitably produce the right type, who will combine the wide outlook of the works manager with the searching detail of the trained chemist and the constructional capacity of an engineer. He will be able to insist upon getting his place in the sun and not hide his light under a bushel as at present. Specialisation is the secret of success in professional chemistry, whether as scientist, consultant, analyst, or technologist. Prolonged study and hard work are inevitable, but there is always room on top for those who master their subject and can think for themselves, for the bulk of "chemists" follow in footsteps already well trodden. In building up a reputation it is necessary to break away from tradition without making errors in academic science or mistakes in industry, which cost money. Degrees in science or diplomas in technology are certificated proof of an all-round scientific knowledge which the professional chemist of the future will find a *sine qua non* in applying for a "position." The beginner early in his career has to decide towards which group his talents tend. The works chemist is a product of industrial training, his qualifications being during or subsequent to this period. Against the advantage of being more or less self-supporting is to be reckoned the difficulty of complying with the requirements of curricula for examinations. The way of examinations is much easier for the full-time University student.

Holders of pharmaceutical qualifications find no great difficulty in passing examinations for science and public analyst degrees, providing they can comply with curriculum conditions. The appointments in laboratories of wholesale druggists and hospital dispensaries are held by persons having pharmaceutical qualifications with B.Sc. or F.I.C. qualifications, or both, the training in pharmacy being also essential.

### Preliminary Standards

The London University Matriculation examination is typical of the entrance standard of the Universities of Great Britain and Ireland. Boys should have already taken their training before leaving school, but technical colleges and institutes provide plentiful facilities for study for students of all ages. For particulars of the London Matriculation apply to the External Registrar, University of London, South Kensington, S.W.7.

A list of Preliminary examinations approved by the Institute of Chemistry is obtainable on application to the Registrar, 30 Russell Square, London, W.C.1.

These include the University Matriculation examinations, entrance examinations of recognised colleges, and examinations of certain educational bodies, such as the Senior Certificate of the College of Preceptors. Those who are able to pass the Matriculation examination should do so, as it is an advantage to be able at any subsequent time to sit for a degree examination, the higher status conferred by a degree making this well worth striving after. The compulsory subjects must be passed at one examination, but in certain circumstances the Council of the Institute of Chemistry accepts evidence that the subjects have been passed in two examinations.

### Science Degrees

The Science degrees of the University of London are open to both internal and external students, the latter arrangement permitting working technological chemists to take a degree in Science without complying with a curriculum. The external examination is more difficult, owing to wider scope of questions. The examinations for the B.Sc. are (1) the Matriculation, (2) the Intermediate examination in science, and (3) the Final examination. The General Intermediate examination in Science commences on the first Monday in July. An additional Intermediate examination will be held, in London only, for external students, commencing on the fourth Monday of November. A candidate must have passed the Matriculation examination not later than the preceding January or June, respectively, or otherwise have fulfilled the conditions of exemption. Candidates are required to pass in any four subjects selected by themselves out of the following: (1) Pure mathematics; (2) applied mathematics; (3) physics; (4) chemistry; (5) botany; (6) zoology; (7) geology; (8) general physiology; (9) geography; (10) military science. At least one of the four subjects selected must be taken from among the first three. The fee is £6 6s. Candidates enter for a pass at both examinations, but may take honours in the June examination.

The Final examination for B.Sc. takes place once a year, commencing on the third Monday prior to the first Monday in July. New regulations are to be introduced in 1926, but meantime the B.Sc. Degree (General) will be awarded to successful candidates who take three subjects, and the B.Sc. Degree (Special) to candidates who pass in a principal subject and a subsidiary subject. Successful candidates will be awarded First-class Honours, Second-class Honours, or a Pass Degree. For external students there will also be a Pass examination, commencing the first Monday in November in the more ordinary subjects. Candidates must have passed the Intermediate at least a year previously, and the Matriculation at least three years previously. The fee is £6 6s. There are fourteen prescribed subjects to select from. The degrees Master of Science (M.Sc.), Doctor of Philosophy (Ph.D.), and Doctor of Science (D.Sc.) are also granted.

The English provincial, Irish, Scottish and Welsh universities confer the B.Sc. degree (*cum curriculo*), usually of three years, after matriculation, with examinations at the end of each session. The degrees are granted in various branches—e.g., botany, chemistry, mathematics, or physics. At Manchester and Glasgow the degree can be taken in pharmacy. In the earlier stages of the curriculum all students study together, the differentiation according to the special subjects taking place later.

### Diplomas for Analytical Chemists

The Institute of Chemistry of Great Britain and Ireland (30 Russell Square, London, W.C.1) conducts periodically examinations for the associateship of the Institute (A.I.C.). Associates who have been continuously engaged in applied chemistry for three years may enter the Fellowship (F.I.C.) examination (or obtain this through research or invention), which is attractive to pharmacists on account of their special knowledge of drugs. A certificate in Branch E (analysis of food and

drugs, and water, etc.) is nowadays a necessity to obtain an appointment as a public analyst. The Regulations for the admission of students, associates and fellows are obtainable from the Registrar of the Institute.

**STUDENTSHIP.**—Candidates (who must be British subjects) should register at the Institute (see above) as students. They must be not less than sixteen years of age and have passed an approved Preliminary examination, and at the time of application be training at a recognised institution or under a Fellow of the Institute, or, in exceptional cases, by a chemist in an approved laboratory or chemical works. In the last two cases annual reports of progress are required. Annual registration-fee, 10s.

**ASSOCIATESHIP.**—The Examination for Associateship (A.I.C.) consists of general theoretical chemistry (two papers at least) and practical chemistry, and occupies at least five days. Fee, £5 5s. It is open to: (i.) Candidates who have completed four years' systematic day course of study in a recognised university or college; (ii.) candidates who have been trained partly in recognised universities or colleges and partly under Fellows of the

Institute in laboratories or works; (iii.) candidates who have completed an approved evening course extending over five years and have been engaged during the day in chemical work during that period; (iv.) candidates who have obtained a university degree, including chemistry in the subjects, and have taken a further year's training in chemistry at a university or college or have had two other years' approved experience under a Fellow of the Institute or in an approved laboratory or works.

Applications from candidates (over 27 and with at least ten years in practice) who do not comply with the above requirements are also considered. The synopsis of the examination for the associateship is as follows:—

(a) *General Theoretical Chemistry.*—Candidates are required to show a thorough acquaintance with the fundamental laws and the current theories of chemistry, together with the properties and the methods of preparation of the more important elements and of their compounds, both inorganic and organic; their application in the arts and industries. At least two papers, including questions in inorganic, organic and physical chemistry, will be set.

(b) *Practical Chemistry.*—Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores, and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicles, the identification of organic compounds. Gas analysis. The determination of physical constants and the use of physical instruments employed by chemists.

The examination in quantitative analysis may include the performance of some operation selected from the candidate's own record.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

Admission to the associateship without further examination may be granted to candidates who have obtained certain university degrees with first or second class honours in chemistry, or other diplomas recognised by the Council, with certain limitations as to courses of instruction and training.

### SCIENCE QUALIFICATIONS

(IN BRIEF)

#### B.Sc. LONDON DEGREE

1. Pass Matriculation.
2. Intermediate Examination in Four Science Subjects selected out of Ten. Fee £6 6s.
3. Final Examination taken at least one year afterwards. Fee £6 6s.

#### F.I.C. DIPLOMA

1. Pass approved Preliminary Examination and register as Student while training with recognised instructor. Annual Fee 10s.
2. After 4 years' day training, Examination for Associateship. Fee £5 5s.
3. Three years after may be admitted a Fellow. Entrance Fee £5 5s.

more important elements and of their compounds, both inorganic and organic; their application in the arts and industries. At least two papers, including questions in inorganic, organic and physical chemistry, will be set.

(b) *Practical Chemistry.*—Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores, and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicles, the identification of organic compounds. Gas analysis. The determination of physical constants and the use of physical instruments employed by chemists.

The examination in quantitative analysis may include the performance of some operation selected from the candidate's own record.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

Admission to the associateship without further examination may be granted to candidates who have obtained certain university degrees with first or second class honours in chemistry, or other diplomas recognised by the Council, with certain limitations as to courses of instruction and training.

**FELLOWSHIP.**—Admission to the Fellowship is open by examination to associates of three years' standing, who are not less than twenty-four years of age, or may be granted without examination, or with a modified examination, at the discretion of the Council, to associates of three years' standing who (i.) have carried out original research; or (ii.) have devised processes or inventions of sufficient merit; or (iii.) have satisfied the Council that they are possessed of knowledge and ability equivalent to having fulfilled the conditions contained in (i.) and (ii.). In exceptional cases candidates who have been systematically trained, and who have had considerable experience, may be examined for Fellowship without passing through the grade of Associateship.

The Fellowship examination fee for Associates, £5 5s., is more specialised, there being various branches for which the candidates may enter. These are: (A) inorganic chemistry; (B) physical chemistry; (C) organic chemistry; (D) agricultural chemistry; (E) the chemistry of foods and drugs and water; (F) bio-chemistry; (G) chemical engineering; and (H) general and analytical chemistry.

### Science Schools

Courses of science instruction are available at the following institutions. These in general cover the subjects for London Science degrees, courses for the National Certificates in Chemistry awarded by the Board of Education (as to which Rules No. 100, price 2d., is obtainable at the Stationery Office), and for the Institute of Chemistry Examinations. The student should ascertain from the secretary of the institution whether the courses available cover the specific curricula for the examinations he intends to enter:—

**ABERDEEN.**—*University.*—Degree courses in science. *Robert Gordon's Technical College* includes a well-equipped chemical department.

**ABERYSTWYTH.**—*University College of Wales.*—Science course, £16 per session (with practical work). Registration-fee, £1.

**BANGOR.**—*University College of North Wales.*—Composition fees as at Aberystwyth.

**BARNESLEY.**—Day courses for B.Sc. degree of Sheffield University; £10 10s. per session.

**BARROW-IN-FURNESS.**—*Technical Schools, Abbey Road.*—Evening classes in chemistry are available; fee, 7s. 6d. per session.

**BELFAST.**—*Queen's University.*—Class fees in the Faculty of Science, from £1 1s. to £3 3s. each subject. *Municipal Technical Institute.*—For particulars of the science courses apply to the Principal.

**BIRMINGHAM.**—*University.*—B.Sc. curriculum (pure science), fee (including chemistry), £32 per session. *Municipal Technical School, Suffolk Street.*—Evening classes in chemistry, botany, and physics.

**BLACKBURN.**—*Municipal Technical School.*—Day and evening classes are available in chemistry, physics, and botany.

**BOLTON.**—*Municipal Technical School.*—Evening courses in chemistry; fees, 5s. to 10s. per session.

**BRADFORD.**—*Technical College.*—Day and evening courses for University of London degree examinations.

**BRIGHTON.**—*Municipal Technical College.*—Day courses for University of London examinations.

**BRISTOL.**—*University.*—Degree courses for B.Sc.; fee, £51 10s. per annum; M.Sc., Ph.D., and D.Sc. *Merchant Venturers' Technical College.* Courses in chemistry, physics, and nature-study.

**BURNLEY.**—Day and evening classes are held at the Municipal Technical Institute in chemistry and physics; fees, £1 2s. to £5 5s. per course.

**BURY.**—Evening chemistry courses (extending over three years), cost 10s. to 15s. per session.

**CAMBRIDGE.**—*University.*—For particulars apply to the Registrar.

**CARDIFF.**—*University College of South Wales and Monmouth and Technical College.*

**CORK.**—*University College.*—A constituent College of the National University of Ireland.

**DARLINGTON.**—*Technical College.*—Evening courses in chemistry; 15s. to 20s.

**DERBY.**—*Technical College.*—Classes in chemistry, botany, and physics.

**DUBLIN.**—*Royal College of Science.*—Similar to the Imperial College in South Kensington. Three years' course

for A.R.C.Sc.I. in chemistry (pure and applied) and other branches; fee £15 to £20 per annum. *Trinity College.*—Apply to the Registrar. *University College* (National University of Ireland).

**DUNDEE.**—*University College.*—Day classes in botany, chemistry and physics. *Technical College.*—Central institution for eastern counties of Scotland for technical instruction.

**EDINBURGH.**—*University.*—Degree courses for B.Sc.; inclusive fee, £110. *Heriot-Watt College, Chambers Street.*—The day chemistry course is recognised by the University of Edinburgh and the Institute of Chemistry; fee, £20 to £25 per annum.

**EXETER.**—*University College.*—Degree course in science. Fees, £25 per annum.

**GALWAY.**—*University College.*—A constituent college of the National University of Ireland.

**GLASGOW.**—*University.*—Degree courses in science.—*The Royal Technical College.*—The day and evening classes include chemistry, technical chemistry, physics, botany, and bacteriology.

**HALIFAX.**—*Municipal Technical College.*—Day and evening classes in chemistry.

**HUDDERSFIELD.**—*Technical College.*—Full-day and evening courses in chemistry, physics, botany, and other science and technological subjects, such as the chemistry and manufacture of dyes. Sessional fees: Day, £12 12s.; evening, from 10s. 6d., according to requirements.

**HULL.**—*Municipal Technical College, Park Street.*—Evening classes for Matriculation, Inter., and Final B.Sc.

**LANCASTER.**—*The Storey Institute.*—Evening classes in chemistry, physics, and botany.

**LEEDS.**—*University.*—Degree courses in science; £41 per session. *Central Technical School, Cookridge Street.*—Evening classes in chemistry.

**LIVERPOOL.**—*University.*—Composition-fees for degree courses at £40 a session.

### LONDON

**IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, South Kensington, S.W.7.**—This is a national institution, and comprises the Royal College of Science, the Royal School of Mines, and the City and Guilds (Engineering) College. Year by year the College gathers students who have gained science scholarships in the examinations conducted under the Board of Education, including the Royal Exhibitions and National and Whitworth Scholarships. Government chemists are also trained at the Royal College, and private students are received for systematic training to qualify them for various pursuits in applied science. Entrants should have passed the Matriculation examination of the London University or its equivalent or the Entrance examination of the College. The courses of instruction extend to three years at least. The fees amount to £62 10s. per session; and there are several scholarships and prizes. The diploma of A.R.C.S. (Associate of the Royal College of Science) is granted in biology (entomology), botany, chemistry, geology, mathematics, mechanics, optical engineering, physics, and zoology; of A.R.S.M. after four years' training in mining, metallurgy, and the technology of oils, etc.; and of A.C.G.I. after three years' study in engineering. In all cases examinations are held in each academic year on the work of the year. The diploma of the Imperial College of Science and Technology (D.I.C.) is also awarded on suitable research work.

**BATTERSEA POLYTECHNIC, Battersea Park Road, S.W.11.**—Complete day and evening courses in chemistry, botany, physics and chemical technology. Fees, £18 per session for day students. There are also special evening classes in bacteriology; food and drug analysis; oils, fats, and soaps; and "recognised" London B.Sc. courses.

**BIRKEBECK COLLEGE, Breams Buildings, Chancery Lane, E.C.4.**—Complete courses (day and evening) for University of London science degrees and other examinations in science. Composition-fees for Intermediate or Final science examination (day courses), £7 a term, £18 5s. a session; (evening courses), £2 5s. a term, £6 a session.

**BOROUGH POLYTECHNIC INSTITUTE, Borough Road, S.E.1.**—A series of technical lectures on essential oils, by Mr. C. T. Bennett, B.Sc., Ph.C., commences in September. Fee, 5s., or 10s., including practical work. Foodstuffs, electrochemistry, and laundry materials are the subjects of other courses. Chemistry classes are also held, beginning in September; fees, 5s. to 10s. per session.

**EAST HAM TECHNICAL COLLEGE.**—Evening chemistry classes; fees, 5s. to 22s. 6d. per session.

EAST LONDON COLLEGE, Mile End Road, E.1.—Classes in chemistry, mathematics, physics, and botany. Intermediate, Final, and Honours B.Sc. courses, and courses for the diplomas of the Institute of Chemistry. Fee, £22 2s. per annum.

KING'S COLLEGE, STRAND, W.C.2.—The composition-fee in the Faculty of Science is £31 10s. per annum; entrance-fee, £6.

NORTHERN POLYTECHNIC INSTITUTE, Holloway, N.7.—The composite fees for the Intermediate and Final B.Sc. courses are: Day, £15 per annum; evening, £2 10s. to £5 15s. per session. Evening classes in chemistry, botany, physics, and photography cost from 5s. to 50s. each subject.

ROYAL HOLLOWAY COLLEGE, Eghamfield Green, Surrey.—For women students only, mainly residential. There are degree courses in science. Fees: Residential students, £135 per annum; non-residential, £45 per annum.

SIR JOHN CASS TECHNICAL INSTITUTE, Jewry Street, Aldgate, E.C.3.—Evening courses in chemistry, physics, also on fermentation industries, fuel, metallurgy, and mining at moderate fees.

SOUTH-WESTERN POLYTECHNIC, Manresa Road, Chelsea, S.W.3.—Day and evening courses in chemistry and botany. Fees for the B.Sc. course: Day, £15; evening, £3 per session. Classes are also held on food and drugs analysis.

UNIVERSITY COLLEGE, LONDON, Gower Street, W.C.1.—Fees for three years B.Sc. course, including chemistry, £111 1s.

WANDSWORTH TECHNICAL INSTITUTE, High Street, Wandsworth, S.W.18.—Evening classes in science; fee for a recognised course, 15s. a session.

WEST HAM TECHNICAL INSTITUTE, Romford Road, E.15.—Evening and day classes in chemistry, physics, and botany. Inclusive fee, 14s. to 21s.

WOOLWICH POLYTECHNIC, Lower Market Street, Woolwich.—Classes in chemistry and botany; fee, 7s. 6d. to 12s. 6d.

MANCHESTER.—Victoria University.—Composition-fee for B.Sc. degree in science, £32 11s. per session. Classes in bacteriology are held in the University in connection with the Department of Bacteriology and Preventive Medicine, York Place. Pharmacists are admitted to the elementary courses in bacteriology and sanitary chemistry. Applications to Mr. W. W. C. Topley, M.A., M.D., Professor of Bacteriology and Director of the Public Health Laboratory.

College of Technology also provides specialised instruction in applied chemistry. A degree of Bachelor of Technical Science (B.Sc. Tech.) is now obtainable.

NEWCASTLE-UPON-TYNE.—Armstrong College.—Tuition fees for degree course in pure science, £35 per annum.

NORWICH.—Technical Institute.—Evening classes in chemistry and physics. Classes in practical chemistry and practical physics are held on two mornings a week.

NOTTINGHAM.—University College.—London University B.Sc. day course in chemistry; composition-fee, £10 10s. per term. Evening classes in chemistry, physics, botany.

OXFORD.—University.—For particulars apply to Registrar. Technical School.—Fee for evening chemistry classes, 10s. per annum.

PAISLEY.—Technical College.

PLYMOUTH.—Municipal Science, Art, and Technical Schools.—Day and evening courses in science subjects.

PORTSMOUTH.—Municipal College.—Instruction in science subjects (including chemistry, physics, and botany) at day and evening classes.

READING.—University College.—B.Sc. course for London University examination, £30 per session. Evening classes in chemistry and botany.

ROCHDALE.—Municipal Technical School.—Evening classes in chemistry and botany (practical work included).

ST. ANDREWS.—University College.—Inclusive fee for courses: Evening, B.Sc. degree, £30 to £94 10s.

SAFORD.—Royal Technical Institute.—Two years' day course, for which a diploma, endorsed by the Board of Education, is awarded. Evening courses in chemistry and physics, qualifying for "course" certificate.

SHEFFIELD.—University.—Degree courses in science. The composition-fee for B.Sc. course is £90, payable in three annual instalments. Central Secondary Evening School.—Classes in chemistry and botany.

SOUTHAMPTON.—University College.—B.Sc. course composition-fee, £30 per session.

SWANSEA.—University College and Technical College.—Evening classes in chemistry, physics, and botany. Day courses are held for degrees in science.

WIGAN.—Day course (£10 10s. per session), and evening classes (17s. 6d. to 22s. 6d. per session) in chemistry.

## Optical Diplomas

The chemist and druggist is by his education well fitted to take up the business of an optician, prior to the commencing of which in this country the possession of a qualification in optics is not at present compulsory. It is, however, advisable to pass one of the leading examinations, which is the only evidence of proper training. Moreover, signs are not wanting that before long attempts will be made to obtain legislation so that the public will be able to distinguish between the competent optician and the impostor. The examinations are being revised on progressive lines from time to time, but should present no difficulties to pharmacists. After qualifying more intimate knowledge of diseases of the eye may be gained at the Refraction Hospital, 58 Newington Causeway, London, S.E.1. On commencing the business the initial outlay does not call for a great amount of capital, and an idea of the stock required may be obtained from the *C. & D.*, 11, 1920, 1441. The supplying of spectacles is among the additional benefits under the National Health Insurance. We also direct attention to the advantages to chemists who are interested in optics of becoming connected with the Society of Chemist-Opticians, which was founded in the interests of chemists carrying on an optical business. Membership carries with it a weekly journal ("The Optician"). The honorary secretary is Mr. J. Harcombe Cuff, 453 Caledonian Road, London, N.7. The following are among the most suitable text-books for the use of students: Laurance's "General and Practical Optics" and "Visual Optics and Sight-Testing," 21s. each; Swaine's "Ophthalmic Optical Manual," 5s. (the Hatton Press, Ltd.).

### The Diploma Schemes

THE SPECTACLE MAKERS' COMPANY, 14 Temple House, Temple Avenue, London, E.C., whose Royal Charter was granted in 1629, and whose diploma scheme, founded in 1898, holds its examination in London in May and November of each year. Candidates must satisfy the examiners in all sections of the examination, which is divided into two parts, the Preliminary being concerned with general and practical optics, and the Final with visual optics and sight-testing. Candidates over eighteen years of age are admitted to the Preliminary division, but not to the Final until twenty-one years of age. Those over forty years of age, who have spent ten years in the optical industry, are exempted from sections (a) and (c) of the Preliminary. Candidates who pass in some sections and fail in others are not required to sit for the sections in which they were successful on re-examination. The fees are £3 3s. for each division, and in addition there is a registration-fee of £4 4s. (including £3 Government duty), payable when the diploma is issued, and an annual payment of 4s. to the Company for "quarterage." A diplomate is entitled to use the initials F.S.M.C. and the arms of the Company for business purposes, and to claim the freedom of the City of London at a cost of £2 2s. The examination is accepted as a qualification for the Fellowship of the Institute of Ophthalmic Opticians. The subjects of the examination are as follows:—

*Preliminary:* (a) Optical bench work, (b) *viva-voce* examinations in general and practical optics, (c) a written examination in optical calculations and practical optics, and (d) a practical examination in the neutralisation of lenses and lens-setting.

*Final:* (e) Practical examination in frame adjustments and measurements, and optical prescriptions, (f) *viva-voce* examinations in visual optics, (g) written examination in visual optics, and (h) practical examination in sight-testing.

The full prospectus, with application form, can be obtained from the Clerk of the Company.

THE BRITISH OPTICAL ASSOCIATION (incorporated 1895), 10 Clifford's Inn, London, E.C.3, is revising its examinations, and the alterations are understood to be of an important nature. Particulars will be available shortly. At the annual meeting of the Association (*C. & D.*, I, 1924, p. 297) a resolution was passed urging the institu-

tion of a preliminary examination, the standard suggested being that of Senior Oxford or Matriculation. Up to the present the Association has conducted two examinations—Dioptric (Associate) and Fellowship—and has recently instituted a supplementary examination dealing chiefly with the recognition of ocular conditions other than normal. This examination is open to holders of the D.B.O.A. and F.S.M.C. (above) certificates, and on passing it they become Fellows of the British Optical Association (F.B.O.A.). Those who pass the Fellowship examination obtain the title Fellowship Honours Examination (F.B.O.A. *hons.*). It is proposed that the present Dioptric grade shall be discontinued, except for those who have already obtained it, and do not take the Fellowship examination, and that in its place a more advanced examination shall be held consisting of all the subjects of the Dioptric grade and the recognition of abnormal conditions, such as is required for the supplementary examination. The subjects of the Dioptric examination are as follows:—

*Section I.*: Optical bench work; neutralising; straightening twisted frames; face measurement; frame repairs. Fee, £3 3s.

*Section II.*: Subjective sight-testing. Fee, £5 5s.

*Section III.*: Written questions in mechanical optics; physiologic optics; anatomy and physiology; and an oral examination in "resource." Fee, £2 2s.

The examinations are held twice yearly, usually in May and November, in London and occasionally in Glasgow and Manchester. Full details and application forms may be obtained from the secretary.

THE NATIONAL ASSOCIATION OF OPTICIANS, 163 Oakfield Road, Liverpool, has recently instituted a diploma scheme for which the examinations are held in January and July at such places as the Council may determine. On qualifying the candidate is granted the Fellowship diploma and is entitled to use the initials F.N.A.O. The examination for the Fellowship diploma consists of two parts, the First and the Final, which may be taken separately. The former is open to candidates under the age of twenty-one, but no certificate is issued until they are fully qualified. Candidates aged forty years and over are allowed to enter for the Final examination on the payment of an entrance fee of £5 5s. The subjects are as follows:—

*First*: (a) Written examination in general and practical optics, and optical calculations. (b) Oral examination in general and practical optics, and optical calculations. Fee, £3 3s.

*Final*: (a) Written examination in visual optics, in anatomy, physiology and diseases of the eye. (b) *Viva voce* examination in visual optics, in anatomy, physiology, and diseases of the eye. (c) Practical sight-testing. (d) Practical face and frame measurements. (e) Practical analysis and marking of lenses and prisms. Fee, £3 3s.

In the event of failing in a subject or section the candidate may be re-examined, the re-examination fee being £2 2s. The prospectus may be obtained from the secretary.

THE ASSOCIATION OF THE COLLEGE OF OPTICS holds a Fellowship examination in Scotland, usually at Glasgow, twice yearly. The examination is divided into three parts, Preliminary, Intermediate and Final. Candidates over twenty-one years of age and holding certain certificates, such as that of the Pharmaceutical Society or an approved optical diploma, or having at least five years' sight-testing experience, are excused the Preliminary. On passing the examination there is an election fee of 10s. 6d., and an annual subscription of 10s. 6d. to be paid. Diplomates are allowed to use the letters F.C.O. The subjects of the examination are as follows:—

*Preliminary*: Dynamics, hydrostatics, heat, sound, light, lenses. Fee, £1 1s.

*Intermediate*: Written, practical, and oral examinations in ophthalmic optics. Fee, £2 2s.

*Final*: Visual and physiologic optics and subjective and objective sight-testing. Fee, £2 2s.

### Optical Instruction

The following are among the principal schools where the necessary instruction in preparation for the examinations of the bodies named may be obtained:—

NORTHAMPTON POLYTECHNIC INSTITUTE, Clerkenwell, London, E.C.1.—The full-day course in technical optics extends over two years, but is so arranged that the knowledge required for the examinations of the Spectacle Makers' Company and the British Optical Association will be covered in the first year of the whole-time day course. The fee for this course is £18 per session. The evening courses enable students to take the preliminary portions of the above-named examinations at the end of the second year's work and the complete examination in three years. The "Aitchison Memorial Scholarship," value £36, is tenable at the Institute. The examination for the scholarship, which is held in September, comprises two compulsory subjects (English and mathematics) and two optional subjects. Full particulars may be obtained from the secretary and treasurer, Mr. H. F. Purser, 35 Charles Street, Hatton Garden, E.C.1. The prospectus of the Institute can be had by applying to the Principal.

THE SCHOOL OF OPTICS, LTD., 2 Guilford Place, London, W.C.1, where Mr. Lionel Laurance, who is official instructor to the Spectacle Makers' Company, and Mr. H. Oscar Wood prepare students for the Company's examinations, is well fitted up and thorough training is given. The complete full-time course (fee £31 10s.), which commences in May and November of each year, terminates with the next succeeding examination, and covers both the Preliminary and Final divisions. The part-time combined course (fee £14 14s.), which can be commenced at any time, consists of homework by correspondence, supplemented by classes, which are held each day for four weeks immediately preceding the examination.

THE BRITISH OPTICAL INSTITUTE, LTD., Fern Lodge, 20A Grove Road, Brixton, London, S.W.9, offers every facility for the instruction of those wishing to prepare for either of the examinations. The necessary tuition is obtainable at day and evening classes or by a system of postal correspondence. Vacation classes, with individual attention, not necessarily for examination purposes, are held during the months of January, July, August, and September. The Principal is Dr. Max Coque, B.Sc.

MR. C. A. SCURR, B.Sc., F.S.M.C., F.B.O.A., chemist and druggist, 50 High Street, Barnet, London, prepares candidates for the foregoing examinations. The courses, being mainly correspondence, are particularly suitable for those desiring an optical qualification by spare-time study. The practical work is arranged to suit the students' convenience, but is usually acquired during a visit to London just prior to the examination. This also gives an opportunity for revision or additional personal coaching. The tuition-fee for either examination is £8 8s., that for the F.N.A.O. Final examination only being £5 5s.

MUNICIPAL COLLEGE OF TECHNOLOGY, Manchester, conducts evening classes in applied optics which cover the syllabus of the British Optical Association's examinations. Full particulars may be obtained from the registrar.

THE TECHNICAL COLLEGE, BRADFORD, conducts evening classes to meet the requirements of the Spectacle Makers' and the British Optical Association's examinations. The full course extends over three years. The first year is suitable for the Preliminary of the S.M.C., and also those portions of the B.O.A. syllabus dealing with physical optics. Full particulars may be obtained from the Principal, Mr. H. Richardson, M.Sc.

THE COLLEGE OF OPTICS, 395 Argyle Street, Glasgow, and 14 South Street, Andrew Street, Edinburgh, holds all-day, evening and correspondence courses, which cover the work in general and visual optics and practical sight-testing, suitable for either of the examinations. Classes are also held fortnightly in Dundee. The tuition-fees for the F.C.O. are as follows: Preliminary, £2 2s.; Intermediate, £3 3s.; Final, £3 3s. The Principal is Mr. T. S. Baird, Argyle Street, Glasgow.

## Veterinary Surgery

By the Veterinary Surgeons Act, 1881, it is provided that no person, unless on the Register of Veterinary Surgeons maintained by the Royal College of Veterinary Surgeons, may take or use "the title of Veterinary Surgeon or Veterinary Practitioner or any name, title, addition, or description, stating that he is a Veterinary Surgeon or a Practitioner of Veterinary Surgery, or any branch thereof, or is specially qualified to practise the same" (the use of the title veterinary chemist is not an infringement of the Act.—"Veterinary Counter Practice," p. 414). The only means by which a person can be placed on the Register is by obtaining the Diploma of Membership of the Royal College of Veterinary Surgeons (M.R.C.V.S.), and candidates for this qualification must, before entering upon the prescribed course of study for it, be at least sixteen years of age and have passed a Preliminary examination in English, mathematics and a foreign language, and one optical subject. The standard is similar to that for the medical profession. The professional course of training covers a period of four years, and must be taken at one of the five schools affiliated to the Royal College of Veterinary Surgeons. At the end of each year it is necessary to pass an examination, the subjects of which are as follows:—

*First Professional Examination.*—Anatomy of the domesticated animals; chemistry and physics; biology.

*Second Professional Examination.*—Anatomy of the domesticated animals; histology and physiology; animal management, and the principles of shoeing.

*Third Professional Examination.*—Pathology, bacteriology, and morbid anatomy; materia medica and toxicology; veterinary hygiene and dietetics.

*Fourth Professional Examination.*—Principles and practice of veterinary medicine; meat inspection; principles and practice of veterinary surgery and obstetrics.

The Fellowship examination of the Royal College is in one of the following subjects—Anatomy, physiology, pathology, helminthology and entomology, pharmacology and toxicology, medicine, tropical medicine, surgery, or sanitary science, is open to members of two years' standing.

Graduates in arts, science or medicine, holders of a recognised degree or diploma in agriculture, and holders of the diploma of M.R.C.S., or L.R.C.P., may be exempted from the first year's course and the examination at the end of that year, subject to their presenting the whole subject of anatomy at the second year's examination. The examination fee payable to the Royal College of Veterinary Surgeons is £5 for each examination, or £3 3s. for re-examination in the same class. In the case of graduates exempted from the first year's course, the examination fee for the following year is £8 8s., and the re-examination fee in case of rejection is £4 4s. In addition to the post-graduate, several entrance scholarships are open at the colleges named.

### Veterinary Colleges (Affiliated to the R.C.V.S.)

**LONDON.**—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.1.—Educational fee for four years' course of instruction, £105, may be paid in four instalments. There are also library and other fees amounting to £5 12s. 6d. Fees for occasional students are from £3 3s. to £8 8s. per subject, and for those taking the B.Sc. degree in veterinary science of the University of London additional fees totalling £15 15s. Principal and Dean, Professor Sir John McFadyean, M.B., B.Sc., LL.D., M.R.C.V.S. Secretary, Mr. T. C. Wright.

**EDINBURGH.**—*Royal (Dick) Veterinary College*, Summerhall (founded 1825).—Entrance- and class-fees for the complete curriculum amount to £108, with an extra fee of £12 12s. for each subsequent period of ten weeks. Principal, O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

**DUBLIN.**—*Royal Veterinary College of Ireland*, Shelbourne Road, Ballsbridge.—The college is conducted by the Department of Agriculture and Technical Instruction for Ireland. Principal, Professor J. F. Craig, M.A., M.R.C.V.S. Particulars may be obtained from the Registrar.

**GLASGOW.**—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill. Full par-

ticulars are obtainable from the secretary. Principal, Mr. S. H. Gaiger, F.R.C.V.S.

**LIVERPOOL.**—*The University Veterinary School* gives a university training for the M.R.C.V.S., and also for a veterinary degree. For the fees and complete curriculum application should be made to the Director.

### Veterinary Degrees

Every candidate who has successfully negotiated the four professional examinations is required to pay a further fee of £1 for registration. Having obtained his diploma, the graduate is eligible for numerous official appointments at home and abroad and commissions in the veterinary units of the Army. A member of the Royal College who has been engaged in the practice of his profession for two years or upwards may present himself for examination for the Diploma of Fellowship (F.R.C.V.S.). Veterinary-science degrees are granted by the Universities of Bristol, Edinburgh, Glasgow, Liverpool, London, and Manchester to candidates who matriculate and take the prescribed course of study. These degrees, however, do not in themselves enable the graduate to practise as a veterinary surgeon. An extra year is usually required to cover the curriculum for a degree.

### Dispenserships

Official positions as dispensers or "pharmacists" are open to registered chemists and druggists in hospitals, dispensaries, infirmaries under the charge of boards of guardians, Army and Navy Hospitals, and other public institutions as follows:—

**ARMY.**—The regulations dealing with Army compounders have lately been discussed between the Director-General of Army Medical Services and the Pharmaceutical Society of Great Britain, and a lengthy committee report has been published.

**MENTAL HOSPITALS.**—The rate of pay for dispensing chemists in the London County mental hospital service is:—Men, £150 per annum, rising by £10 annually to £220; women (with one exception), £125, rising by £7 10s. annually to £185. Temporary additions to meet the cost of living are paid. The hours of duty are not fixed; and annual leave of twenty-one days is allowed.

**NAVY.**—Assistant pharmacists (whose age on entry must not be less than twenty-one or more than twenty-eight years) are required to hold the Major or Qualifying certificate of the Pharmaceutical Society of Great Britain, or "the certificate of competency" of the Pharmaceutical Society of Ireland. Entry is by competition. The salary begins at £120 per annum (with quarters for unmarried men, civil service bonus, and other allowances), and rises by £5 annually to £170. Assistant pharmacists are eligible for promotion to the grades of pharmacist (maximum, £250) and superintending pharmacists (maximum, £350).

**POOR-LAW INSTITUTIONS.**—Appointments in the Poor-law service have been transferred to the control of the recently formed Ministry of Health, and are open to chemists and druggists and a few other classes of dispensers. Salaries vary, boards of guardians fixing their own scales subject to the total coming within the estimate for the current year. The security of tenure is not, at present, all that could be desired, and the draft of the Poor Law Infirmaries Order, 1923, has been so severely criticised by the various bodies concerned that the actual Order has not, up to the present, been issued. The effect such an Order would have upon the status of the dispenser would be to place him as a second-class officer without security of tenure.

**PRISON COMMISSION.**—The rates of pay and allowances for pharmacists in the prison service are £2 8s. a week, rising to £3 10s., plus a Civil Service temporary bonus, and with medical attendance and medicines in certain conditions. Uniform and quarters are provided, or 9s. 6d. a week in lieu. Candidates for appointment must hold the Pharmaceutical Society's qualification, and it is necessary that they be within the prescribed age limits (24 to 35 years). A preliminary examination (fee, 7s. 6d.) must be passed, and a probationary period of twelve months follows appointment.

## Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in gobbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, August 14.

ALTHOUGH the usual summer dullness is prevalent in the markets, there is a better undertone in business generally, owing to the good prospects of an early settlement of the German reparations question. The Board of Trade Returns for July show the satisfactory increase of eleven millions sterling in exports and one of twenty millions in imports compared with June last. Among crude drugs, menthol has been decidedly more active at rising prices, particularly forward shipment; dementhised mint oil has also followed the advance. New American mandrake root is cheaper to arrive, and hydrastis is very firm. Cocoa butter and shellac are dearer. In essential oils an improved demand is reported for a number of items. Japanese mint is dearer; Dutch caraway is lower, and cedarwood is at a famine price. Bourbon geranium is firmer; cubeb is slightly easier, and white camphor is lower. Eucalyptus is steady; American peppermint is very scarce, and the position is obscure; new crop is not expected before October. Among the vegetable oils the tone is healthy, with higher prices for castor, coconut, cottonseed, ground nut, rape and soya oils. Hankow wood is cheaper. In industrial chemicals the usual summer holiday slackness is noticeable, with a few slight alterations in buyers' favour. Formaldehyde is again cheaper; imported lead products, such as litharge, red and white lead, have been reduced; cream of tartar is easier. Creosote oil has substantially declined, while pyridine shows a slight recovery. In pharmaceutical chemicals a number of price changes have occurred, mostly downward, among them being amidopyrin, benzaldehyde, betanaphthol, benzoic acid, paraldehyde, salicylic acid, and sodium salicylate. On the other hand, the bromide salts are higher, owing to the much diminished stocks.

Higher	Firmer	Easier	Lower
Almonds	Cascara sagrada (c.i.f.)	Amidopyrin	Benzoic acid
Areca		Barbitone	Betanaphthol
Castor oil	Coconut oil	Benzaldehyde	Cadmium
Cinnamon	Ground nut oil	Caraway seed	Caraway oil
Cocoa butter	Hexamine	Cream of tartar	Cloves (Zan.)
Cottonseed oil	Pyridine	Cubeb oil	Oct.-Dec.
Glucose	Sodium benzoate	Gum acacia (c.i.f.)	Creosote oil
Menthol		Lubricating oils	Formaldehyde
Mint oil (J.p.)		Podophyllum root (c.i.f.)	Litharge
Rape oil		Paraldehyde	Red and white lead
Shellac		Petroleum jellies	Soda diethyl barb.
Turpentine		Soda salicylate	Wood oil (Hankow)

## Exchange Rates on London

The following is a list of Continental and other exchange rates against the pound sterling on London prevailing at 4 p.m. on Wednesday:—

Place	Method of Quoting	Par of Exchange	August 6	August 13
Amsterdam	Fl. to £	12.107	11.55—11.55½	11.60—11.60½
Berlin	M to £	20.43	18.75—18.85 bilns	19.15—19.30 bilns
Brussels	Fr. to £	25.22½	89½—89½	87½—87½
Calcutta	Per rup.	24d.	17½d.—17½d.	17½d.—17½d.
Christiania	Kr. to £	18.159	32.35—32.40	32.43—32.47
Constantinople	Pst. to £	110	830—850	844—854
Greece	Dr. to £	25.22½	255—256	253—254
Italy	Lire to £	25.22½	101½—101½	100½—100½
Kobe	Per yen	24.58d.	22½d.—22½d.	21½d.—22½d.
Lisbon	Escu	53d.	1½d.—1½d.	1½d.—1½d.
Madrid	Pts. to £	25.22½	33.16—33.18	33.60—33.62
Montreal	\$ to £	4.86½	4.45½—4.46	4.55—4.55½
New York	\$ to £	4.86½	4.45½—4.45½	4.54—4.54½
Paris	Fr. to £	25.22½	82.35—82.45	80.80—80.90
Singapore	Per dol.	—	27½d.—28½d.	27½d.—28½d.
Switzerland	Fr. to £	25.22½	23.63—23.66	24.06—24.08
Vienna	Kr. to £	24.02	315,000—317,000	322,000—324,000

## Cablegram

NEW YORK, August 14.—Business is quiet. Menthol has advanced to \$11.50 per lb., and peppermint oil in tins to \$4.25. Cartagena ipeocuanha is dearer at \$2.00 per lb., and for hydrastis (golden seal) the price has advanced to \$3.50. Acetanilide is dearer at 33c. Cascara sagrada is cheaper at 23c. Balsam Canada has declined at \$11.00 per U.S. gallon, and Oregon balsam of fir to \$1.15 per U.S. gallon. Antipyrine is cheaper at \$2.05 per lb.

## Crude Drugs, etc.

ALMONDS are dearer, new crop Jordan being almost double in price compared with last season, 26's to 30's being quoted equal to about 240s. per cwt. landed terms.

ARECA is scarce on the spot, and for a very limited quantity of Ceylon 57s. 6d. per cwt. is asked; in five-ton lots 50s. per cwt. c.i.f. is asked.

BALSAM TOLU continues scarce on the spot, and the price is nominally 10s. per lb. For September-October shipment 6s. 6d. c.i.f. is quoted.

CADMIUM.—If anything the tendency of the market has been the turn easier, this being due to the very liberal quantities coming forward from America and also Australia. Rates may be called 2s. 6d. to 2s. 9d. per lb.

CAMPHOR (REFINED).—Spot prices of Japanese slabs are unchanged at from 2s. 11d. to 3s. per lb., according to quantity; but are slightly firmer forward, the sales including parcels afloat at 2s. 10d. c.i.f.; 4-oz. tablets are 4s. to 4s. 1d. per lb. spot.

According to the London drug statistics the landings during July were 200 and the deliveries 186 packages, leaving a stock of 3,247, against 2,322 packages at the same period of 1923.

CARAWAY SEED.—Several shipments of Dutch new crop have recently arrived, the quality of which is good, and it is anticipated that the bulk of the crop arriving during August-September will also be good. This position is now offered at 39s. per cwt. c.i.f., which is easier.

CASCARA SAGRADA is unchanged at from 70s. to 75s. per cwt. c.i.f. terms for new crop, and for three-year-old bark to come forward 160s. c.i.f. is quoted.

According to the London drug statistics the landings during July were 3 tons and the deliveries 11 tons, leaving a stock of 5 tons, against 18 tons in 1923.

CASTORUM.—Since the auction last December many of the first-hand lots have been cleared at an advance of several shillings per lb. on the prices then asked.

CHAMOMILES.—Current prices are: Belgian, old crop, 100s. to 160s. per cwt., according to quality; new crop, first pickings, 160s. per cwt.; second half of August shipment, first pickings, 155s.; shipment September fair average quality, 145s. to 155s. per cwt. As growers are silent in regard to the production, it is presumed the crop is good.

CINNAMON is rather dearer, Ceylon firsts on the spot being quoted at 1s. 1½d. to 1s. 2d., seconds at 1s. 1d., thirds 1s., and chips at 3d. per lb.

CLOVES continue dull, with spot sellers of Zanzibar at from 1s. 1d. to 1s. 1½d. per lb. as to quality. For October-December shipment business has been done at 9½d. per lb. c.i.f. For the week ended August 9 the landings in London were 100 bales, and the deliveries 477 bales, leaving a stock of 24,689 bales, against 14,019 bales in 1923 and 3,010 bales in 1922. The landings so far this year have been 37,364, against 26,001 in 1923, and the deliveries 32,092, against 14,011 last year.

COCOA BUTTER is ½d. per lb. dearer, best brands (C.F.R.) having advanced to 1s. 1½d. per lb. in ton lots, and other makes 1s. 1d.

COD-LIVER OIL.—Our Bergen correspondent writes on August 11: The market is quiet; sellers, however, are trying to advance prices. The official quotation is therefore advanced 2s. per barrel to 92s. c.i.f. London for non-freezing steam-refined quality.

GLUCOSE has advanced by 1s. 6d. per cwt. American water white offering for August delivery at 27s. 1½d. per cwt., duty paid, landed terms.

GLYCERIN.—Little interest has been taken in crude in the principal markets for a lengthy period. The basis price of chemically pure s.g. 1,260 of the British Glycerin Association for home trade continues at 82s. 6d. per cwt. in 10-cwt. drums, and 90s. in cases on five-ton contracts.

GUM ACACIA.—Kordofan sorts on the spot are quoted at 57s. 6d. per cwt., and to arrive at 51s. c.i.f.; cleaned is offered at 60s., and to arrive at 53s. 6d. c.i.f.

HYDRASTIS remains very firm at 18s. per lb. on the spot, and at 17s. 3d. per lb. c.i.f. to arrive. Very fair quantities have been taken up by consumers abroad this season, and importers find it a difficult market to operate in owing to the continued rising tendency in prices.

**IPECACUANHA.**—According to the London drug statistics the landings in London during July were seven Matto Grosso and the deliveries 69, leaving a stock of 254 of this description, compared with 143 at this period last year. Of Minas, Cartagena and East Indian there were no arrivals, while eight bales of the latter were delivered, leaving the stock at *nil*. Matto Grosso is 8s. 3d. to 8s. 6d., and Minas 8s 3d. to 8s. 6d.

**MENTHOL** is dearer. A fair amount of business was done on Saturday last at 47s. 6d. per lb. for Kobayashi-Suzuki on the spot, and subsequently from 48s. to 52s. 6d. was paid, sellers quoting 54s. on Wednesday. Forward shipment prices have rapidly advanced, August-September offering at 49s., c.i.f. early in the week, but subsequently sellers quoted 53s., c.i.f., and on Wednesday 54s. 6d., c.i.f. For some weeks past the United States has sent inquiries to the London market, this fact pointing to a shortage in that country.

The exports of menthol from Japan during 1923, according to the U.S. Commercial Attaché at Tokyo, were as follows:—

		Lb.	Yen
British India	.. .. ..	10,847	149,800
England	.. .. ..	19,973	313,000
France	.. .. ..	9,524	136,000
Germany	.. .. ..	10,450	159,000
United States	.. .. ..	151,457	2,325,000
Others	.. .. ..	24,868	372,000
		227,119	3,454,000

**MERCURY.**—There continues to be rather a wide gulf between spot prices and the equivalent of Continental shippers' terms for new shipments, which have remained at an inflated level. Holders of secondhand parcels, therefore, are not much inclined to sell at any renewed concessions. The nearest quotation lately has been £13 5s. per bottle, at which some business has been done, but parcels might have been secured at a little less. There is certainly a very ample supply, and export business has remained disappointing. The production of the Almaden mines for last year was lately reported at 32,923 bottles, compared with 58,083 bottles for the previous year. According to a Continental report the new Council of Administration suspended the publication of returns of production and sales since the beginning of February this year.

**OLBANUM.**—Pale drop is quoted at 90s. to 92s. 6d. per cwt., reddish 60s. to 65s., good garblings 40s., common 30s. to 35s., and siftings 50s. to 55s. per cwt. on the spot.

**PEPPER** is quiet, but steady, fair black Singapore offering at 5d. per lb. on the spot; August-September and September-November shipment is quoted at 4½d. c.i.f. London for f.a.g. Tellicherry is 5½d. to 5½d. spot. Muntok white is quoted at 8½d. spot, July-September 8½d.; August-October has been sold at 8½d. to 8½d., and October-December at 8½d. to 8½d., c.i.f. London.

**PODOPHYLLUM ROOT.**—New crop American is offered for August-September shipment at 67s. 6d. per cwt. c.i.f. New York reports a large collection this year. Indian (*P. Emodi*), is about 110s. to 115s. per cwt. on the spot.

**RHUBARB.**—According to the London drug statistics the landings in London during July were 37 chests, and the deliveries 37 chests, leaving a stock of 610 cases, against 810 cases a year ago.

**RUBBER** has experienced remarkable fluctuations since our last report, and after rising fully 1d. per lb towards the end of last week, the advance has at the time of writing been almost completely lost; spot, which at one time reached 1s. 2½d., now stands at 1s. 1½d. These fluctuations are not surprising in view of the heavy rise the commodity has recently had, and is chiefly due to a great amount of profit-taking by dealers and "outsiders." Further, as soon as the spot price stood at 1s. 2d. importers' offers were being made by the large Dutch interests for shipment over the first half of 1925. At the close the position is very uncertain, and with any material support the market would speedily recover 1d. per lb., as it is difficult to secure any appreciable quantity at the lower level of prices. We find there is still a good demand for "off grades," which is generally regarded as a sign of strength. Stocks last week were reduced by 42 tons. Quotations (Wednesday, 5 p.m.): No. 1 standard crêpe and ribbed smoked sheet, spot and August, 1s. 1½d.; September, 1s. 1½d.; October-December, 1s. 1½d.; January-March, 1s. 1½d.

**SARSAPARILLA.**—According to the London drug statistics the landings during July were 118 bales and the deliveries 28, leaving a stock of 405 bales, against 200 at the same period last year.

**SENNA.**—Small sales of Tinnevelly pods have been made at 9d. per lb. in single-bale lots.

According to the London drug statistics the landings in London during July were 397 packages and the deliveries 150, leaving a stock of 1,197, against 1,629 at this period a year ago.

**SEEDS.**—There is no alteration in the seed market, which remains firm at the following prices: Spanish ANISE, 75s. per cwt., and Russian, 60s. to 65s. CANARY SEED is quiet but firm, with sellers of Mazagan at 29s. 9d. per cwt., and Spanish of good quality at 35s. on the spot. Maltese CUMIN SEED is slightly easier at 100s. on the spot, sellers to arrive quoting 85s. c.i.f. Morocco is 97s. 6d. spot. New crop CORIANDER SEED is still 27s., and old crop 25s. DILL SEED is 20s. to 21s. Morocco FENUGREEK SEED, 23s., and Spanish 18s. 6d. per cwt. Manchurian HEMP SEED is unaltered at 17s. 6d. Morocco LINSEED is still 23s. 6d. per cwt. c.i.f., and English yellow MUSTARD SEED is 36s. to 38s. per cwt.

**SHELLAC.**—While there has been no important revival in the trade demand on the spot, a decidedly stronger feeling nevertheless became manifest since last issue, owing to a rallying movement in the Calcutta market, and the terminal market last week rose considerably. Holders of actual shellacs are more reserved, while last month's shipments from Calcutta were abnormally small. Usual standard T.N. orange quality on spot closes at 277s. 6d. to 282s. 6d.; fine second orange, 340s.; superfine, 380s.; pure button, 345s.; AC cakey, 265s.; and GAL, 250s. per cwt. The sales for delivery include August at 272s. 6d. to 277s. 6d., and October at 267s. 6d. to 272s. 6d.

**STARCH PRODUCTS.**—Dutch maize starch powder (cornflour) is quoted at 18s. 6d., and American at 19s. 9d. per cwt. net, on the spot. American maize starch crystals is 22s. 6d. net, and Dutch 23s. Best English rice starch crystals is 33s., and Continental 28s. per cwt. Dutch farina is 18s. 9d.; superior Dutch dextrin is 23s.; and No. 2 21s.; American canary dextrin is 22s. 9d., and white 22s. 6d. per cwt., ex store, London.

### Essential Oils

THERE is a better demand for quite a number of articles Japanese dementholismed mint oil is higher, both for spot and afloat. The finest Bulgarian otto of rose is fetching extreme prices. Eucalyptus shows a stock shortage in consumers' hands. Caraway oil reflects the position of the seeds. In cedarwood almost a "famine" is reported, unremunerative prices having stopped the distillation of the oil.

**ANISE (STAR).**—Sales of five- and ten-case lots are reported at 2s. 3½d. and 2s. 4d. per lb.; the forward position is unaltered and quite neglected.

**CAMPHOR.**—White essential is lower, original 7-cwt. drums being quoted at 55s., and tins and cases at 62s. 6d. per cwt.

**CARAWAY.**—New crop values are declining, but quotations seem to be remarkably uniform; a fair business for early shipment is reported for the double-distilled 0.910 sp. gr. at 14s. 9d., and later shipment is offered at 14s. 3d. to 14s. 6d. The crude oil is 1s. 6d. per lb. less.

**CASSIA** steady at 7s. 4½d. to 7s. 6d. per lb. for 75 to 80 per cent. c.a. on the spot; the c.i.f. price is relatively higher at 7s. 6d. to 7s. 9d. per lb.

**CEDARWOOD** appears to be unobtainable; sales are known to have been made at 2s. 6d. per lb. c.i.f. to come forward, and there are further buyers; previous low prices have made it an unprofitable article to handle.

**CITRONELLA.**—Ceylon on the spot is in good supply, and for original 10-cwt. drums 3s. 3d. per lb. would probably be accepted; the c.i.f. price is nominal at 3s. 1½d. per lb.

**CUBEB** is quoted at the slightly cheaper rate of 26s. 6d.; demand is slow.

**EUCALYPTUS** has been in steady demand. Sales of fair quantities of 70 to 75 per cent. cineol have been made at 2s., and 75 to 80 per cent. at 2s. 1d. The seasonal demand seems to have opened earlier than usual, and it is generally thought that the position warrants higher prices.

**GERANIUM.**—Bourbon is firmer on the spot. Sales of genuine are reported at 36s. per lb. African, which is likely to become very scarce, is quoted at 35s. to 36s. per lb.

**LEMON.**—Spot oil moves slowly at from 2s. 11d. to 3s. 1d.; old crop for prompt shipment is offered at 2s. 10½d., and the new crop (January-March, 1925 shipment) at 2s. 9d.

**LIME OIL.**—West Indian distilled is slow at 5s. 3d. per lb.; for the new crop 4s. 6d. is mentioned, but it is thought this opening figure is much too high.

**MINT.**—Japanese dementholismed (Suzuki brand) is dearer; 14s. 3d. to 14s. 6d. has been paid on the spot and 14s. 9d. now asked; 14s. c.i.f. (afloat) has also been paid, and August-September shipment is quoted at 15s. c.i.f.

**OTTO OF ROSE.**—The finest quality of Bulgarian readily scills at 57s. to 60s. per oz. in quantity, but grades can be had down to 37s. 6d. per oz. The present crop is estimated

but one-third of a normal one, and as the season advances values are certain to improve.

**PEPPERMINT.**—American natural oil is very scarce on the spot; certain brands are unobtainable and would fetch 20s. 6d. to 21s.; lesser-known brands have been sold at 19s. 6d. to 20s. The new crop appears to be very late, and it is unlikely anything will be ready before October; offers in the region of 16s. are mentioned, but they are probably tentative, as little oil has yet been distilled and the position is obscure. H.G.H. is also scarce on the spot, 27s. to 27s. 6d. being asked; for prompt shipment from New York, 26s. 6d. is quoted.

**VERVET.**—Genuine Bourbon has been sold at 50s.; a limited quantity arriving shortly might be had a little less.

#### Pharmaceutical Chemicals, etc.

FLUCTUATIONS in spot values are recorded in a number of products this week. The few instances of higher values are generally due to spot shortage. The cheaper prices seem to be the result of poor business and rather heavy spot stocks. So far no material change in the position in Germany is reported, and it is too early to comment on what effect the possibility of settlement of Reparations question may have. Bromides are higher.

**ACETANILIDE** remains quiet at from 2s. 1d. to 2s. 2d. per lb. for spot supplies.

**AMIDOPYRIN** is a shade easier, with dealers offering on spot at or just under 14s. per lb.

**ASPIRIN** keeps steady, with a fair volume of small business. Good brands are held on spot at 3s. 3d. per lb. for quantities.

**BARBITONE.**—Dealers' prices for spot stocks are down to about 15s. per lb., with little business about.

**BENZALDEHYDE** (0.3) is a shade easier, with spot stocks offered by dealers at about 3s. 3d. per lb.

**BENZOIC ACID** (B.P.) is now quoted at the cheaper price of about 3s. per lb. Ex toloul is still 2s. 6d. per lb.

**BENZONAPHTHOL** seems of no interest, with the price nominal at about 5s. 6d. per lb.

**BETANAPHTHOL** shows a fall on the week, and is now offered by dealers at about 3s. per lb.

**BROMIDES.**—The tone of this market keeps up, with spot stocks practically cleared on account of recent large export orders. Quotations are now mostly for material to arrive, which are based on high rates from Germany. Ammonium, 1s. 2d. per lb.; potassium, B.P. crystals, 11d. to 1s.; granular, 10d. to 11d. per lb.; sodium, B.P. crystals and granular, is scarce at 11d. to 1s. per lb. for reliable material, the higher prices being more current. The German makers' prices are: Potash 2s., sodium 2s. 1d., ammon. 2s. 2d. per kilo, f.o.b. Hamburg. They intimate that no contracts are being undertaken owing to uncertainty regarding raw material. Altogether U.S. appears to have imported about 300 tons of bromides.

**CALCIUM LACTATE** seems rather firmer, with some holders asking up to 1s. 9d. per lb. It might be possible to place orders at a little less.

**CHLORAL HYDRATE.**—Duty-paid crystals on spot are very scarce, and forward prices are dearer. Offers are now well up to 4s. 3d. per lb.

**CITRIC ACID.**—Business is reported as being very slow, with holders finding some difficulty in moving stocks, and the market is very weak. The quotation is about 1s. 5d. per lb., less 5 per cent. for B.P. crystals, but orders might be placed something under this figure.

**COCAINE** is about steady, with 16s. 3d. per oz. accepted for the larger quantities of hydrochloride, smaller lots being higher in proportion.

**CREOSOTE** (B.P.) is steady but quiet at about 2s. 6d. per lb. **CREOSOTE CARBONATE** is nominal on an idle market at about 6s. 3d. per lb.

**GUAIACOL CARBONATE** is seldom inquired for. Dealers quote at about 11s. 9d. per lb.

**HEXAMINE.**—There is a slightly firmer tone, and some dealers are now asking from 3s. 7d. to 3s. 8d. per lb., according to quantity.

**HYDROQUINONE** keeps very steady, and sales continue in fair volume. Dealers quote from 4s. 3d. to 4s. 9d. per lb.

**LACTIC ACID** is steady, but not at all active. Dealers quote at about 2s. 8d. per lb.

**METHYL SALICYLATE.**—Prices quoted vary and supplies seem plentiful, while the demand is not brisk, and competition is keen. Some cheap offers in the region of 1s. 10d. per lb. for quantities may be found, while other holders are asking close up to 2s. per lb.

**METHYL SULPHONAL** remains quiet at 26s. per lb.

**MILK SUGAR** is rather firmer, and replacement costs from the Continent are somewhat higher than spot parity. German is not obtainable below 80s. per cwt., and for finest New Zealand make 90s. is wanted.

**PARAFORMALDEHYDE** is irregular, with quotations varying from 2s. 11d. up to 3s. 3d. per lb.; business has been quiet.

**PARALDEHYDE** is a shade cheaper, with dealers quoting in the region of 1s. 5d. per lb.

**PHENACETIN** keeps fairly steady, with business in small lots. Dealers' prices are from about 6s. to 6s. 3d. per lb., according to quantity.

**PHENAZONE** has been selling on spot in moderate quantities, with dealers asking about 7s. 6d. per lb.

**PHENOLPHTHALEIN** continues to be quoted close up to 6s. 6d. per lb., but it is doubtful if sales have been made at that figure.

**POTASSIUM PERMANGANATE** (B.P.).—Dealers' quotations for quantities in drums are a shade under 7d. per lb., but business done would probably be at somewhat cheaper rates.

**POTASSIUM SULPHOGUAICOLATE** remains neglected, with the price nominal at about 6s. per lb.

**RESORCIN** is steadier this week, although the demand is still poor. Quoted on spot at about 5s. 9d. per lb.

**SACCHARIN** (550).—Values are unchanged at 62s. 9d. to 65s. per lb., duty paid, according to quantity.

**SALICYLIC ACID** (B.P.).—The tone of this market is still unsteady, and prices are on the weak side owing to the lack of orders for carbolic acid. Dealers offer at about 1s. 6d. to 1s. 7d. per lb., according to quantity. Some believe, however, that the market has touched bottom.

**SODIUM BENZOATE** is rather firmer this week, with good quality on spot quoted up to 2s. 9d. per lb.

**SODIUM DIETHYLBARBITURATE** is offering at the cheaper price of about 16s. per lb. this week, but the market is still quiet.

**SODIUM SALICYLATE.**—The spot position has weakened, and dealers' prices are still rather unsteady. Business has not been brisk. B.P. crystals, about 2s. 3d. to 2s. 4d. per lb.; powder, about 2s. 2d. per lb.

**SULPHONAL** continues to be quoted at about 15s. 6d. per lb., with the market flat.

**TANNIC ACID**—B.P. *leviss* is steady but quiet on spot at about 2s. 11d. per lb.

**TAETARIC ACID.**—Business during the past week is reported as being very limited, with spot holders finding it difficult to move supplies. Quotations are round about 1s. 1d. per lb., less 5 per cent., for B.P. crystals.

**TERPIN HYDRATE** is steady but quiet; quoted at 1s. 9d. per lb.

**THYMOL.**—Supplies are reported short and prices mentioned have advanced sharply, being now in the region of 19s. to 19s. 6d. per lb.

**VANILLIN** is unchanged, offers varying from about 24s. 6d. to 25s. per lb. for 100 per cent.

#### Industrial Chemicals, etc.

London, August 14.

There is a little change to report this week. Business is suffering from the usual summer holiday slackness, and this condition seems likely to continue till early in September. Prices, however, keep fairly steady, but few alterations in buyers' favour are again in evidence this week. The pending political changes in the Continental situation may have some effect on this and other chemical markets.

**ACETIC ACID** is a little steadier, but spot holders are still finding the demand small and slow; prices are level: 80 per cent. technical, about £43; 80 per cent. pure, about £44 per ton, in barrels; 98 per cent. glacial, about £69 per ton, in glass demijohns, ex wharf, London.

**ACETONE.**—Business shows no improvement, and spot quotations at about £100 per ton, for B.G.S., in drums, are not firm.

**ALUM** keeps steady, but quiet, with dealers quoting about £10 per ton, for lump, in casks.

**AMMONIA (ANHYDROUS)** is firm, with sales quite good. Dealers' quote Continental (99.95 per cent.) at 1s. 5d. to 1s. 6d. per lb., in loaned cylinders.

**AMMONIUM CHLORIDE** (grey galvanising quality) is a firm item, with sales from spot stocks good; dealers' prices are well held at £30 per ton.

**BAEUM CHLORIDE** is steady, and moving fairly well in small lots at about £14 per ton on spot for 98/100 per cent.; lower prices are mentioned for shipment.

**BLEACHING POWDER** is called for now and again, and quoted on spot at about £9 15s. per ton for 35-37 per cent. chlorine. Continental offerings are rather cheaper.

**COPPER SULPHATE.**—Business has remained in narrow compass, only few inquiries coming forward for export. Competition being keen, this tends to keep prices down, these ranging from about £24 10s. to £25 per ton f.o.b. for casks, less 5 per cent. Another month will probably elapse before anything like a revival of activity becomes possible. The quantities shipped against old contracts are now small.

London importers of Continental make are offering at about £21 15s. to £22 per ton, f.o.b. Hamburg.

CREAM OF TARTAR has slackened off in demand of late, and spot prices are rather weaker as quoted close up to 84s. per cwt., less 2½ per cent. for one-ton lots.

EPSOM SALT is in limited demand, with the price steady at about £5 per ton for commercial, in bags.

FORMALDEHYDE (40 per cent. volume) shows a further reduction in spot value, with dealers quoting at about £52 per ton, London. The market is not too steady even at this figure.

GLAUBER'S SALT is level on the week, with the market on the quiet side. Commercial quality, in single bags, about £3 15s. per ton.

LEAD ACETATE is offering on spot by dealers, but inquiry is small: brown, about £44 10s. to £45; white, about £45 10s. to £46 per ton.

LEAD PRODUCTS.—Dealers' prices for Continental material are cheaper, with the market generally quiet; red lead and litharge, about £41 per ton; white, ground in oil, about £44 10s.; and dry, about £42 10s. per ton, c.i.f. London.

LITHOPONE continues very steady, and business is still quite good; dealers offer 30 per cent. Continental red seal at about £22 10s. per ton.

OXALIC ACID seems of little interest, with the quotation standing at about 4½d. per lb.

POTASH CAUSTIC is firm, with business on a small scale on spot: 88/92 per cent. solid, on spot, full £30 per ton, in drums.

POTASSIUM CARBONATE is fully maintained on spot, with dealers finding a fair outlet for their stocks: 90/92 per cent., about £23 per ton; 96/98 per cent., about £24 10s. per ton.

POTASSIUM CHLORATE, on spot, is steady at 3d. per lb., in small lots; shipment prices for quantities are a little cheaper than this figure for quantities from the Continent.

POTASSIUM PERMANGANATE has been in good demand, but prices seem to have been cut, with the average about 7d. per lb. for commercial quality, in drums.

POTASSIUM PRUSSIATE is still slow of sale; dealers offer British and Continental yellow at about 7½d. to 7½d. per lb.

SALTCAKE has been inquired for for export, with the quotation steady at about £3 10s. per ton, f.o.b., for quantities.

SODIUM ACETATE is steady, but quiet, with the spot value about £24 per ton.

SODIUM CHLORATE on spot would be about 3d. per lb. for little lots, while offers for shipment from the Continent would be a little cheaper.

SODIUM HYPOSULPHITE.—A good business is reported by dealers, who are keeping their prices very steady; pea crystals, about £14 to £14 5s. per ton, in one-cwt. kegs; commercial quality, about £9 10s. per ton, in casks.

SODIUM NITRITE is steady and in occasional demand, with the London price for 100 per cent. about £26 to £26 10s. per ton.

SODIUM PRUSSIATE remains dull, with prices for British and Continental about 4½d. to 4½d. per lb.

SODIUM SULPHIDE is unchanged on the week; dealers quote 60/62 per cent. solid at about £14 per ton, in drums, and solid at £15 per ton.

SULPHUR.—The market keeps very steady; American or Sicilian crude is quoted £5 15s. to £6 per ton, while Sicilian refined ranges from £9 12s. 6d. to £9 15s. for flowers, and £7 15s. for roll, delivered ex London warehouse.

#### Fixed Oils, etc.

THE general tone is very healthy with acid, castor, coconut, cotton, groundnut, rape and soya oils closing firm and at rather better prices. Linseed oil is not so bright, and turpentine closes dull, but fairly steady. ACID OILS.—Spot values are fully maintained and the market closes firm: coconut and palm kernel, 41s. 9d.; groundnut, 37s. 6d.; soya, 35s. 6d., all spot. CASTOR.—Further advances in values are recorded, and the market closes very firm: pharmaceutical, 77s.; first pressings, 73s.; second pressings, 71s., all spot, in barrels in not less than one-ton lots. COCONUT is firm, with prices rather higher: deodorised, 52s. on spot; Ceylon, 48s. c.i.f.; Cochin, 51s. e.i.f. COTTON.—Spot values have advanced sharply and the market closes very firm: deodorised, 54s.; common edible, 52s.; soap-making, 48s.; crude, 46s., all spot. GROUNDNUT.—A further slight advance is recorded with the market firm: deodorised, 56s.; crude Oriental, 49s. 6d. c.i.f. LINSEED (RAW, NAKED).—The market has been quieter this week, and at lower prices closes irregular. On spot, 41s. 6d.; August,

40s. 4½d.; September-December, 40s. 3d.; January-April, 39s. 3d.; Hull, on spot, 40s. 3d.; August, 40s.; September-December, 39s. 7½d.; January-April, 38s. 7½d. PALM KERNEL.—Market quiet and a shade easier: deodorised, 50s.; crude, 44s., all spot. PALM has been rather quieter this week, but prices are so far steadily maintained: Lagos, 39s. 6d.; softs, 39s. 6d.; mediums, 39s. 9d.; hards, 40s. 3d.; bleached, 42s. 6d., all spot. RAPE.—Prices have advanced and the market closes firm: refined, 53s. 6d.; erude, 50s. 6d., all spot. SOYA.—Values are unchanged with the market firm: deodorised, 52s.; erude, 44s., all spot. TURPENTINE.—With the turn of the week the market had a sudden spell of buoyancy, chiefly due to strong reports from America, while the Savannah quotations was taken up to 85½ cents. Spot delivery sold up to fully 69s., and covering operations were noted in January-April contracts at rates ranging up to 71s. 6d. On Wednesday this week the market, however, reacted considerably from the best, and closed at 66s. 9d.; September-December, 66s.; January-April, 70s. per ewt. Trade buying was fairly brisk, but then slackened off. There has been, however, no pressure to sell by dealers. Last week's deliveries were 1,675 barrels, making a total of 60,111 barrels since January 1, the stocks increased to 16,273 barrels, which, with 9,550 barrels afloat, make visible supply 32,473 barrels. WOOD.—Hankow in barrels is easier on a weak market at 74s. per ewt.

LUBRICATING, MINERAL AND BURNING OILS, ETC.—Lubricating oils are at a good reduction this week, with the market quiet. One or two other products of American origin are also easier. BUSINESS generally is quiet. BENZOL.—British makers' and dealers' prices show no change; market quiet but steady: crude 65s., 102d. to 1s.; standard motor, about 1s. 6d.; pure, 1s. 8½d. to 1s. 10d. per gallon, ex works, in tank wagons. F.O.B. pries, including free drums, about 6d. per gallon more. FUEL OIL.—Prices are easier with the market dull: 950 gravity, £4 2s. 6d.; 890 gravity, £5 2s. 6d. per ton, ex tank. PARAFFIN WAX and SCALE.—Wax keeps very steady on spot at about 3½d. to 5½d. per lb., according to melting point, in bags. Scale is offering, e.i.f. U.K. port, from 26s. to 27s. per ewt. SOLVENT NAPHTHES are fairly steady in value, but the market is still on the quiet side: 90 to 160, about 1s. 3d.; heavy, 90 to 190, about 1s. 2d. per gallon. PARAFFIN OILS keep firm. American standard white, 1s. 1d.; water white, 1s. 2d. per gallon, barrels free; Russian prime white kerosene, 6½d. to 7d., ex tank; 7½d. buyers' barrels filled free; 10d. per gallon, barrels free, ex wharf, London. PETROLEUM JELLIES.—The market remains quiet and values for some grades are again slightly cheaper: white to snow white, £63 to £68; amber and yellow, about £25 to £28; red vet, about £22; dark stiff green, £19 per ton, barrels free, ex wharf, London. WHITE OILS.—Quoted pries on spot show no further change; market quiet: Special No. 1, £40; No. 1, £35; No. 3 half-white, £27; No. 4 half-white, £19 per ton, drums and barrels free, ex wharf, London. LUBRICATING OILS.—There have been material reductions in pries of crudes and some good reductions in refiners' quotations. The spot position is also lower at the rates quoted: pales, £13 to £26; reds, £14 10s. to £27; dark cylinders, £15 10s. to £35; filtered cylinders, £22 15s. to £36 per ton, less 2½ per cent., ex wharf, London. The improvement in value of sterling on American Exchange has also helped to make spot values cheaper. SOLUBLE OIL, £29 per ton. No. 1 RUSSIAN OIL is unchanged at £19 15s. per ton, less 2½ per cent., ex wharf, London.

#### Russian Wormseed

THE EASTERN & RUSSIAN TRADING CO., LTD., 8 Drapers Gardens, London, E.C.2, inform us that they have at last received a consignment of genuine Russian wormseed, which, in accordance with Harrison & Self's analysis, contains 2 per cent. of santonin and over. The goods are packed in new double bags containing about 30 kilos, and the bags are marked with the Russian Government mark, over the name of the Eastern and Russian Trading Co., Ltd. As the company have been inundated with inquiries for genuine Russian wormseed for nearly a year (during which time this article was not available), the foregoing news will be gratifying to consumers. Attention is also called to the fact that under the name of "wormseed" various articles have been put on the market, which in point of fact hardly contain any santonin. Certain quantities of such substitute still exist on the markets, and care should therefore be taken in all cases to distinguish between them and the genuine wormseed containing not less than 2 per cent. santonin. Whilst the price obtained for "wormseed" during the past year has been about £2 per kilo (about 84 per lb.), the price for the genuine Russian wormseed has now been fixed at 18s. per kilo.



## Qualifying Examination Results

SIR.—Now that the Qualifying examination is divided into two parts, the figures appear to me to be a little confusing. In the results of the July examination, for example, under the heading "Entered for Part I only," there were 92 candidates, of whom 4 were absent, 83 referred, and 29 passed, making a total of 66; what happened to the other 26? Again, under the heading "Entered for Part II only," there were 84 candidates, of whom 1 was absent, 14 referred, and 65 passed, leaving a discrepancy of 4. Can you tell me how these results should be read, or what causes this apparent disagreement in the figures?—Faithfully yours,

RESULTANT (5/8).

## The Profit Squeeze

SIR.—I am not one to court publicity, and it would be useless to attempt to correct all the misleading statements which appear from time to time in criticism of the Proprietary Articles Trade Association, and which often seem to resolve themselves into an attack upon the wholesale trade; but, interested as I am in the P.A.T.A., and with some inner knowledge of its working, I feel I cannot allow the letter of Mr. "C. Denby Day" in your issue of August 2 to pass without comment. Whatever be the defects of the P.A.T.A.—and what human scheme is perfect?—it is at least the most effective and the most successful of any yet produced for the protection of the retailer against extreme cutting, and I fear that Mr. Day has been sadly misinformed. The riding of three horses is the very essence of the Association, and unless they are ridden concurrently and harmoniously there is an end of the P.A.T.A. and its undoubted benefits. Not one of the three can stand alone, as Sir William Glyn-Jones has so often pointed out, and without the co-operation of the wholesale the scheme would quickly become unworkable. Mr. Day seems to infer that some of the wholesale houses allow 2½ per cent. on P.A.T.A. proprietaries, and that for fear of criticism the others, who are assumed to know this fact, allow it to pass. I do not accept this for a moment; but if Mr. Day will give me, or will give Sir William (I write without his knowledge), the name or names of these wholesalers, he will find that the question will be very quickly taken up and the offenders placed upon the "stop list." I am amazed to read the paragraph in regard to substitution, where Mr. Day goes on to say "this is expecting too much," and speaks of the "spice of business life." I am more concerned at the moment with the honour than the spice of business life. What can be the possible inducement to the manufacturer who goes to the trouble and expense of protecting his article except the expectation, to which he is fully entitled, of receiving that treatment which, as is so well put, "common fairness dictates"? It is also hinted that the wholesaler openly supplies his customers who are known to be cutting, and ignores this fact until he is pulled up. The wholesalers, Sir—and by these I mean the recognised wholesalers, and I know most or all of them—are men of honour, who do not stoop to methods of this kind, and Sir William and the officers of the P.A.T.A. know what care is taken by these houses to report and to check any irregularities which come under their notice. I have only one more remark: Mr. Day complains that the P.A.T.A. recommends 25 per cent., but does not insist upon it. If Mr. Day only knew the efforts which are made by the Association to secure this margin for the retail—efforts in which the wholesale section of the council take their full share—I think he would refrain from condemning, and rather remain to bless. I should like to have written at some greater length, but I fear I have already taken up too much of your space.—Yours faithfully,

W. CYRIL BIRKS

York.

(of Raimes &amp; Co.).

## Legal Queries

*Magister* (4/8).—It is customary in England to give chemists' assistants a fortnight's holiday annually. The salary is paid for that period.

*S. H. B.* (9/8).—The recommendation on the showcard that a remedy "acts like magic on all digestive and liver complaints" renders it liable to medicine-stamp duty. The label you send would not render the preparation liable to duty.

*G. W. B.* (6/8).—A prescription from a doctor for a "dangerous" drug made out to a patient should be entered in the prescription-book and a cross-reference made in the Dangerous Drugs Act register, irrespective of who pays the account. The entry should be for the patient, and should not be entered in the poisons register. A prescription is treated as such, and does not come within the term "signed order."

*R. L. P.* (1/8).—(1) The optical illusion showcard would not render the liver pills mentioned upon it liable to medicine-stamp duty. (2) It is one of the methods provided for in the Dangerous Drugs Act Regulations that a doctor may sign the poisons-book for a "dangerous" drug for use in his practice or for Part I poisons required for any purpose. You must either have his actual signature in the poisons book or a signed order from the doctor.

*D. D.* (6/8) has bought a business under an agreement which provides that the seller shall not open a similar business within a radius of three miles. No time limit is prescribed; for how long will the restriction remain operative? [If no time limit is stated, the "radius agreement" will remain operative during the lifetime of the seller, assuming that it is valid. The validity of the restriction depends entirely upon whether or not it is wider than is reasonably necessary for the protection of the buyer. As a rule, the restriction upon competition by the seller of a chemist's business is limited as regards time as well as area; but an agreement of this nature is not necessarily invalid because its duration is indefinite. In certain circumstances, a clause giving a very wide protection to the purchaser of a business is reasonable, and therefore enforceable.]

## Retrospect of Fifty Years Ago

Reprinted from  
"The Chemist and Druggist," August 15, 1874

## The School of Pharmacy

The last meeting of the Pharmaceutical Council (August 5) was occupied largely with a discussion on the new arrangements of the School of Pharmacy, respecting which some comments will be found elsewhere. Although reported by Professor Redwood to be "satisfactory in every respect, except as regards the remuneration afforded to the Professors, there seemed to be several other aspects in which the scheme could be regarded. In fact, judging from the statements made, that Professor Redwood was £100 a year worse off than before, while Professor Bentley's damages were variously stated at from £75 to £220, there seems good reason to question the hopefulness of the present system. Ultimately a committee was appointed to investigate the cause of this "satisfactory" condition. Of the prize awards, Mr. Arthur Pearson Luff took the Pereira medal, and the prize of books, also the silver medals for botany and *Materia Medica*, and for practical chemistry. Mr. W. H. Symons took the silver medal for chemistry and pharmacology. The Jacob Bell scholarships were awarded to Messrs. W. H. Vernon and George Green. There were five competitors. Messrs. Alex. Whyte and Thomas W. Nettleship were also credited with bronze medals, both for botanical exploits.

The final examinations under the old regulations took place last month, commencing on the 8th and ending on the 24th. Twelve days in all were occupied, and the following results were arrived at:—20 candidates presented themselves for the Major examination, and 15 passed; for the Minor, 303 started, but only 90 passed the winning post.



[Commenced C. &amp; D., July 5, 1924]

**Agar-Agar**, or Japanese isinglass, is made from various red seaweeds (*Gelidium cornuum*, *G. cartilagineum*, and *Gracilaria lispenoides*), which are gelatinised by placing in boiling water. The dried product forms transparent strips, which are imported from Japan agglutinated together into bundles about 18 in. long, and also as powder. Agar-agar contains over 70 per cent. of a tasteless, odourless carbohydrate called gelose, which slowly dissolves in hot water, and causes the solution to gelatinise on cooling. Valuation is largely according to colour, No. 1 Kobe strip being nearly pearly white, or with only slight grey-yellow tint. Cheaper grades are yellowish or even brown in colour. Agar-agar is used internally for increasing the bulk of stools in cases of chronic constipation (either plain or with addition of cascara sagrada). Its use is extending as an inert "binder" in dietetics. Agar-agar is used in bacteriology (for slope cultures and plating) at temperatures (such as blood heat) at which gelatin media liquefy.

**Agricultural Poisons** are defined in Section 2 of the Poisons and Pharmacy Act, 1908, as "Poisonous substances to be used exclusively in agriculture or horticulture for the destruction of insects, fungi, or bacteria, or as sheep-dips, weed-killers, which are poisonous by reason of their containing arsenic, tobacco, or the alkaloids of tobacco." The real object of this section of the Act was to permit the sale of such insecticides, sheep-dips, and weed-killers, by persons specially licensed by local authorities, in addition to the sale facilities provided by registered chemists and druggists. In consequence additional conditions are imposed upon such licensees to counteract their lack of specific training as to the nature of poisons. These are additional to the provisions of the Arsenic Act, 1851, the Pharmacy Act, 1868, and the Poisons and Pharmacy Act, 1908, which apply to all sales of agricultural poisons. The regulations applicable to licencees were made by an Order in Council dated April 2, 1909, since amended on November 11, 1911, and October 13, 1920. The premises where agricultural poisons are sold by licensed persons must be open for inspection by the local authority, and the regulations also require that the poisonous substance must be sold in:—

1. An enclosed vessel or receptacle as received from the manufacturer.
2. The vessels or receptacles must be of sufficient strength to withstand rough usage, securely closed, and free from leakage,
3. Distinctly labelled with the name of the substance,
4. The word "Poison."
5. Name and address of the seller (i.e., the person on whose behalf any sale is made).
6. A notice of the special purpose for which the substance has been prepared,
7. Liquid preparations must be sold only in bottles, tins, drums, or casks of sufficient strength to bear the ordinary risk of transit without leakage,
8. Each bottle, tin, drum or cask must have the word "Poisonous" indelibly printed, marked, or branded in easily legible characters in a conspicuous position apart from the label [which must bear the word "Poison." See 4.]
9. Bottles must be of a "distinctive character, so as to be easily distinguishable by touch from ordinary bottles."
10. Solid preparations must be packed in such a manner as to avoid, so far as possible, the risk of breaking or leaking during transport; and
11. The package must have indelibly printed, marked, or branded in easily legible characters in a conspicuous position notice that it must not be used for any other purpose.

In Ireland the conditions applying to the sale of agricultural poisons by licensed vendors are substantially the same as above, except that the Arsenic Act, 1851, and the Sale of Poisons (Ireland) Act, 1875, Poisons and Pharmacy Act, 1908, apply in that country. In addition, the package must contain a notice that it must be destroyed when empty.

**Agri-Horticultural Chemicals.**—The following list includes most of the chemicals required in modern methods of horticulture and agriculture:—

		<i>Used in</i>
Ammonium nitrate and sulphate	...	Fertilisers
Arsenic, white	...	Sheep-dips
Asafoetida	...	Fumigants and insecticides
Calcium nitrate	...	Fertilisers
Copper sulphate	...	Wheat-dressing; Bordeaux mixture; foot-rot in sheep
Carbolic acid, crude	...	Sheep-dip
Carbon disulphide	...	Fumigant for corn; ant and mole destroyer
Caustic soda	...	Sheep-dips; weed-killers; tree-washes
Cayenne	...	Fumigants for greenhouses
Creolin	...	Maggot in sheep; disinfectants
Formaldehyde	...	Wheat-dressing; pear-tree canker; fruit-preserving
Hellebore powder	...	Sheep-dip; fly-powder; currant-worm wash
Hydrochloric acid	...	Weed-killer; worms in lawns
Iron sulphate	...	Wheat-dressing; fertilisers; turnip fungicide
Lead arsenate	...	Fruit-tree wash
Lime	...	Sheep-dip; tree-washes
Lime superphosphate	...	Fertilisers
London purple	...	Insecticides; poisoned bran-mash
Magnesium sulphate	...	Fertilisers; physic for stock
Mercury perchloride	...	Fly in sheep; worms in lawns; fruit-tree paint
Methylated spirit	...	Fruit-tree washes, etc.
Nicotine	...	Fumigant; tree-spray ingredient
Orpiment	...	Sheep-dips
Paraffin oil	...	Sheep-dip; fruit-tree washes
Paris green	...	Insecticide; fruit-tree washes
Pearlash and potashes	...	Fruit-tree washes; sheep-dips
Potassium cyanide	...	Hydrocyanic acid fumigation
Potassium nitrate	...	Fertilisers; veterinary medicine
Potassium sulphide	...	Gooseberry-mildew
Pyrethrum	...	Cabbage-worm wash
Quassia chips and extract	...	Horticultural insecticide
Sodium arsenate	...	Lead arsenate wash
Sodium phosphate	...	Fertilisers
Soft soap	...	Sheep-dips; tree-washes
Sulphur, sublimed	...	Sheep-dips; tree-washes
Sulphuric acid	...	Hydrocyanic acid fumigation
Strychnine	...	Rat-poison
Tar, and spirit of tar	...	Warble-fly preventive, etc.
Terebene	...	Green-fly spray
Tobacco juice and paper	...	Sheep-dip and fumigant
Train oil	...	Warble-fly preventive
Verdigris	...	Foot-rot

In addition to these there is the large class of veterinary medicines, which is dealt with in "Veterinary Counter Practice." Recipes for the various horticultural and agricultural preparations are given in "Pharmaceutical Formulas," a special chapter being devoted to the subject.

**Ajowan** are the aromatic fruits of *Carum copticum*, Bentham and Hooker filius (also known as *Carum ajowan* and *Ptychosis ajowan*), an umbellifer indigenous to India, where it is cultivated for culinary purposes. The fruits are very small and resemble caraway in appearance, but have a strong odour of thymol. Two qualities of seed are generally recognised on the Indian market, known respectively as *Indore* and *Kurnool*, the latter being superior. No statistics of acreage or production are available; but the Indian consumption is fairly large, as the aromatic fruits are much in request for use in curries, etc. The exports from India show considerable fluctuation: in 1912-13 they were 21,700 cwt., and in 1918-19, 2,000 cwt. About 95 per cent. of the exports go from Bombay, and the balance from Calcutta. Germany was the principal buyer in pre-war days, taking 80 per cent., the United States being second. The United Kingdom bought practically nothing in pre-war days, but of the diminished exports since 1913-14 as


*The C&D Commercial Compendium*


much as 25 per cent. went to that destination. The seed is shipped in bags of about 140 lb. (see also Thymol).

**Ajowan Oil.**—The essential oil from ajowan fruits contains about 50 per cent. of thymol, of which it is one of the chief commercial sources. Ajowan oil is official in the British Pharmacopoeia, being used in India and the East as an aromatic carminative in doses of  $\frac{1}{2}$  to 3 minims, in place of anise and dill. It is also used in larger doses as an intestinal antiseptic and anthelmintic.

**Alberta, Pharmacy In.**—See Canada.

**Albumen of Egg**, or white of egg, is used in commerce, both in liquid and dried form. Both are of Chinese origin. The former is bought as frozen "whites" (kept in cold storage), which melts to a glassy colourless or yellow liquid with the characteristics of fresh white of egg, but which quickly develops an unpleasant smell and becomes putrescent in a few days. Dried egg albumen is a more variable substance. It is made (in China) by drying white of egg on glass plates at a temperature below 50° C. It may form thin transparent flakes or small horn-like pieces yellowish in colour. It should dissolve readily in water. Clarity of solution and freedom from putrescent odour is the best guide to quality and care in preparation. The chief use of egg albumen is as a binder in confectionery. It is also used as a fixative for dyes in calico printing, and as a clarifying agent (in the same manner as isinglass) in brewing. Albumen is still used in preparation of some photographic papers in place of gelatin. Fresh egg white (from one egg in 8 oz. sterile water and 5 grains or more of sodium chloride) is used in making albumin water for the treatment of infantile summer diarrhoea, known as zymotic enteritis. The use of liquid white of egg alone in making white oils has practically ceased, owing to egg white having become more valuable than the yolk of egg. The chief commercial quality is the hen albumen, which is imported principally from China, a very small quantity coming from Portugal of a much inferior quality. Prior to the war this article was practically controlled by the large German interests in China, and fully 90 per cent. of the exports to Europe were sent to Hamburg. Nowadays London is the pivotal centre, and the trade is increasing yearly. Albumen is packed in 200-lb. cases. Liquid hen yolk also come from China, and contains 1½ per cent. boric acid as a preservative, and commands a great amount of interest in the textile trade, large quantities being used for industrial purposes. This is packed in barrels of 4 to 5 cwt. each.

**Albumin of Blood**, or blood serum, is prepared by separating the serum from the clot of fresh blood, and evaporating on shallow trays below 50° C. The brittle scales vary in colour from grey to yellow, red, brown, or black. The best varieties are used in calico printing, and the black kinds in sugar refining.

**Alcohol: Commercial Uses.**—The commercial uses of alcohol as a solvent are limited only by considerations of Excise and cost. Duty-paid spirit only is permitted to be used as a beverage, even flavouring medicinal tinctures (such as orange, lemon, and peppermint) being charged at the full rate of duty, and not allowed drawback, as is the case with purely medicinal tinctures. Absolute alcohol is used rarely as a solvent (for microscopical stains) and a dehydrant (in histological work), or in the manufacture of organic derivates (the cheaper rectified spirit can usually be used, as in the manufacture of ether). Rectified spirit (90 per cent. alcohol) is extensively used in medicine and perfumery as a solvent for essential oils and for extraction of plant products. Coloured denatured (or mineralised) alcohol, known as methylated spirit (q.v.), is used mainly by the public in spirit lamps as a convenient source of heat, and illicitly as a beverage. (Its sale for this purpose is an offence.) Industrial methylated spirit (q.v.) is a colour-

less alcohol, denatured by 5 per cent. of wood naphtha, largely used in the manufacture of spirit varnishes (with shellac basis). Its use is subject to strict supervision by Inland Revenue officials, who can permit modifications to suit special industrial requirements, such as manufacture of dyes and of therapeutic principles—e.g., insulin. The use of industrial methylated spirit is allowed in medicinal preparations (liniments, hair washes, etc.) intended solely for external use, but permission has to be obtained in the case of each formula used. A new and growing use for alcohol is as motor spirit. Power alcohol is a strong, impure spirit produced by fermentation of non-edible molasses and containing 95 to 97 per cent. alcohol, denatured by the addition of wood naphtha (2.5 per cent.), pyridine (0.5 per cent.), benzol (P.M.S. I containing 10 per cent. of benzol, and P.M.S. II 25 per cent. of benzol), and a specified mixture of dyes (see Power Methylated Spirit). Alcohol is also used to prevent water from freezing in winter (as in motor-car radiators or other cooling systems exposed to atmospheric temperatures). The following table gives the specific gravities and freezing points of alcohol-water mixtures:—

Per cent. of alcohol	Sp. gr.	Freezing point	
4.8	0.9916	— 2° C.	28.4° F.
11.3	0.9824	— 5	23
16.4	0.9761	— 7.5	18.5
18.8	0.9732	— 9.4	15.1
20.3	0.9712	— 10.6	12.9
22.1	0.9689	— 12.2	10.0
24.2	0.9662	— 14.0	6.8
26.7	0.9627	— 16.0	3.2
29.9	0.9578	— 18.9	2.0

**Alcohol, Denatured**, is intended for use as a solvent in the arts or in manufacture, and the danger of rendering this potable has led to the use of various substances as denaturants. Wood naphtha was first used by itself (1855), but mineral naphtha (petroleum) was also added (in 1891) owing to the growing practice of drinking methylated spirit (see Mineralised Methylated Spirit). In 1902 the use of other denaturants was authorised under certain special conditions. Pyridine and benzol are used as denaturants for power alcohol. Ammonia and quassia are substances which aid in getting sanction for use in formulas, including industrial methylated spirit (q.v.). Methylated finish is a spirit varnish which can be sold without a methylated spirit licence, because it contains sufficient dissolved resin to act as a denaturant (3 oz. to each gallon).

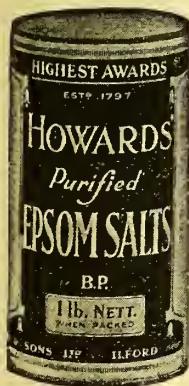
**Alcohol Duty.**—See Spirit.

**Alcohol in Beverages**, produced by fermentation of saccharine liquids, is very variable. These may range from light beers, containing under 1.0 per cent. of absolute alcohol, to fortified wine, with a strength of over 20 per cent. of alcohol. The following table contains the approximate strengths of the commoner kinds of beverages as they occur in commerce (see also Wines):—

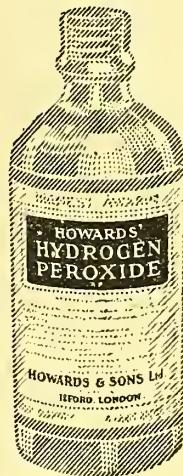
Fermented liquors	Per cent. alcohol	Fermented juices	Per cent. alcohol
Ginger beer ..	under 1.0	Cider ..	4.0-10.0
Weissbier ..	0.9-3.6	Bordeaux ..	6.4-8.7
Lager beer ..	2.9-4.1	Champagne ..	10.0
Light bitter ale ..	3.9	Beaune ..	13.5
Mild ale ..	4.5	Madeira ..	16.1
Burton ale ..	5.9	Marsala ..	17.0
Strong ale ..	6.9	Sherry ..	16.0-18.0
London porter ..	5.4-6.9	Port (new) ..	17.5
Stout ..	5.7	Port (old) ..	20.0

The proportion of alcohol in a natural fermented liquor rarely exceeds 14 per cent. The object of the fortification of wines is to prevent acetous fermentation (or change into vinegar).

**Alcoholic Preparations, Exporting.**—See Tinctures, Exporting.



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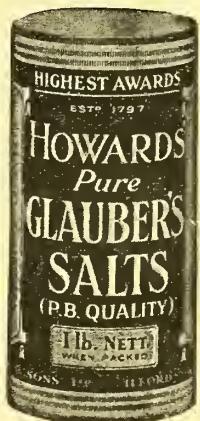


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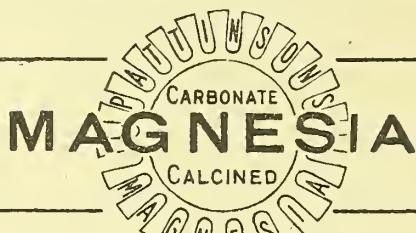
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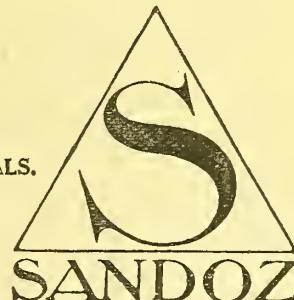
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# “A WARNING TO ALL CHEMISTS”

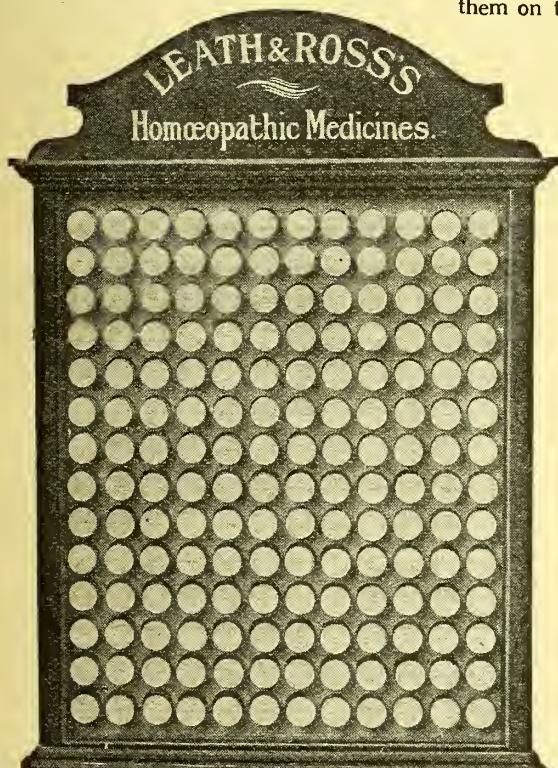
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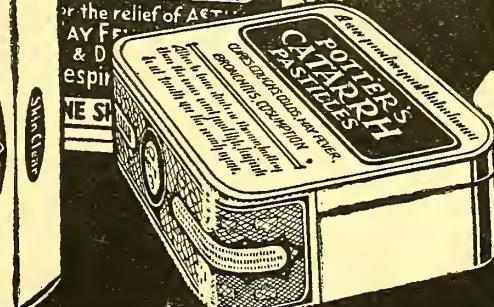
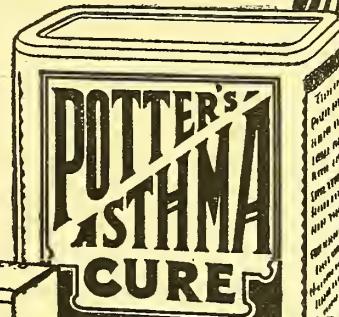
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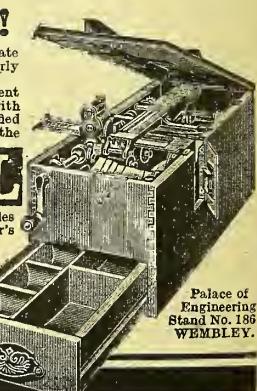
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White, Lemon, Yellow, Amber,  
Red, Green.

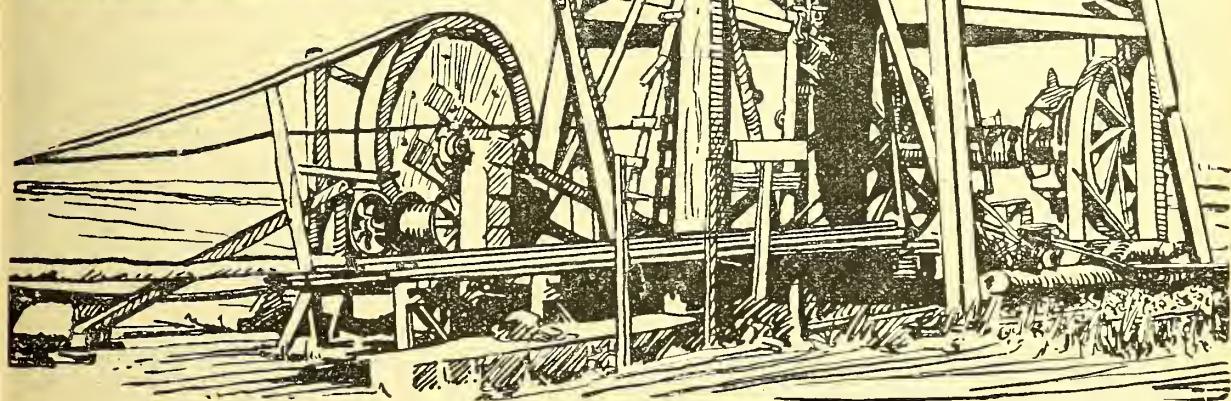
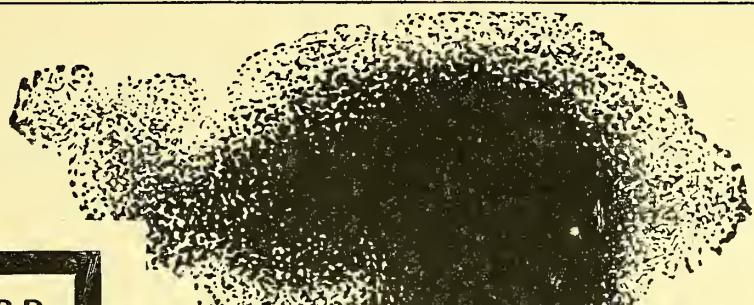
**WHITE AND  
COLOURED OILS**

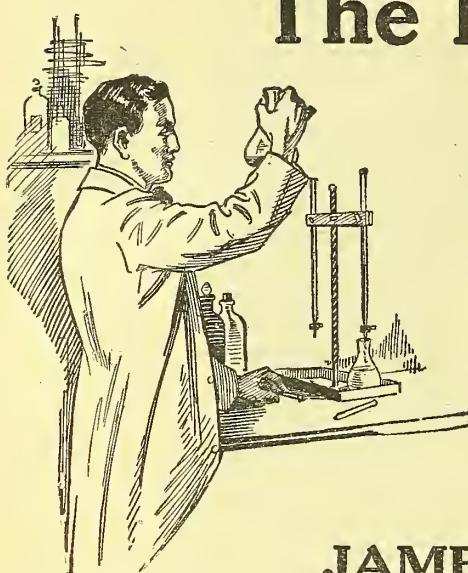
Yellow, Green, Red for  
Brillantine, etc.

*Wholesale and Export only.*

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PETROLEUM JELLY	REFINED COTTON OIL, EDIBLE	SPERM OIL
White		NEATSFOOT OIL
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Red		WHITE OILS
CASTOR OIL		COD LIVER OIL
FINEST COLZA OIL		NUT OIL,
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	TURPENTINE	Edible Arachide
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## The PATENT NECK

makes the "Ronoleke" the only perfectly water tight hot water bottle. The weakest part of the ordinary bottle is the "Ronoleke's" strength.

## NO WIRING

to rust and corrode—just solid built up rubber of great strength. The patent neck has socket lugs embedded in the rubber.

## NO WASHERS

to perish or renew. The screw top flange engages with the solid rubber platform — it cannot loosen when screwed.

PRICE RIGHT

There are a variety of sizes in two colours at reasonable prices. There is the right bottle for every one of your customers.

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Stock "Ronoleke." Send along your order now. £5 orders and over less 5% plus a further 5% for prompt

# Stock the **RONOLEKE**

## THE *BEST* RUBBER HOT WATER BOTTLE

Everything should have its reason. When asked to take a certain step a man will, if he be wise, expect a good reason to accompany the request. Therefore, when we say "Stock Ronoleke" we tell you why you should do so, just as we substantiate our statement that it is the best rubber hot water bottle. Of all reasons, the profit is undoubtedly the most important. The profit on "Ronoleke" is very good alone. When the result of each sale is considered it is wonderful. For every sale means another satisfied customer, a permanent customer, and one who will invariably recommend the "Ronoleke" *and* your business.

*Sales are being  
made for you*



Again we are advertising the "Ronoleke" Hot Water Bottle, in an even more extensive manner than last year. Our advertising campaign will bring potential customers right to your window. Stock "Ronoleke" and display—they'll buy from you when they see that you stock.

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D R A B

Size	Wholesale Prices	Retail Prices	Wholesale Prices	Retail Prices
8 x 10	5/-	7/6	4/8	6/6
8 x 12	5/9	8/6	5/3	7/-
10 x 12	6/6	9/9	6/-	8/-

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*The*  
**Lullaby**  
REGD.  
Patent applied for.  
SEAMLESS-MOULDED NEW  
PROCESS  
FEEDING BOTTLE TEAT



GOES ON EASILY  
COMES OFF EASILY  
WONT PULL OFF

Pure, Transparent,  
Heat-cured Rubber.

Improved design, anti-choke thickened ball top. No ribs. Perfectly hygienic, and easily boiled for sterilization without injury. Absolutely non-poisonous and practically anti-hygrosopic. Most durable of all teats. Packed each in carton in counter display boxes of three dozen.

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Giving value and efficiency  
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Grimes' Patent Improved Rubber.

Red or Blue, Retail 1/6 minimum.  
PER DOZEN 12/-. SHOWCARD WITH 1 DOZ. 5% CASH.  
2½% MONTHLY. CARRIAGE PAID.

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British Patent No. 23493/1910

Weighs from 1 lb. to 20 stone.  
The weight is reflected automatically in the mirror.

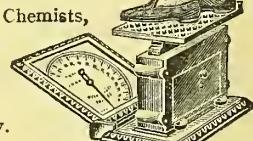
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WEIGHT 19 lbs.

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in Great Britain,  
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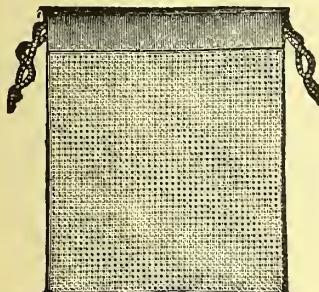
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(SOLE LICENSEES)

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No. 1200



No. 428

No. 978. SPONGE BAG, check sheeting, fancy binding

" 1200. " " super best

" 1201. " " assorted, fancy colours

" 1775. " " the "Climax," proofed both sides

" 1775. " " all rubber, assorted art shades, fancy designs

No. 428—BATHING CAP, helmet shape, rubber, assorted

3 colours, per doz.

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rubber, assorted 3 colours, per doz.

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CARRIAGE PAID ON ORDERS OF £3 AND UPWARDS.

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will quickly confirm your guarantee  
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The  trade mark on each  
bottle is proof enough of our backing  
for this guarantee.

It will pay you to be enthusiastic  
about "STANDARDS"; for you  
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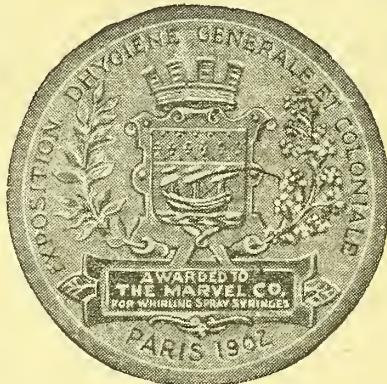
Complete in carton, with teat, valve  
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6/6 doz.; 1 gross 72/-  
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Gold Medal Awarded, Paris, 1902,  
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*Fully Protected by Patents.*



IT IS A MARVEL



*You can safely recommend it.*

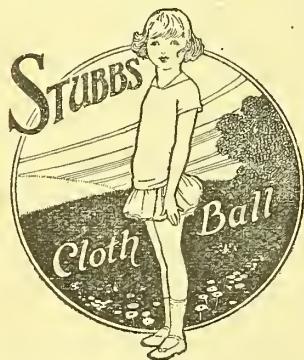
Has no rival on the market, is well advertised, pays a good profit, quality guaranteed. The MARVEL is returnable for exchange if found defective and reported promptly.

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**SURCO SEAMLESS HOSIERY**

ELASTIC  
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Any article in  
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measure and dispatched in 24 hours from receipt of order.  
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Reduced Prices—Better Values

SIMPLIC PATENT ALL-RUBBER SOOTHERS have now been reduced to retail at

**LARGE - - 6d. each**

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Ask your supply house for 1924 prices.

SIMPLIC SOOTHERS have also been increased in weight and they now represent the best value in soothers on the market.

Packed in Dustproof Cartons.

ASK FOR DISPLAY CONTAINER of TWO DOZEN

*Ask also for SIMPLIC TEATS in cartons. This companion line is put up in boxes of 3 dozen Teats in 8 different patterns.*

**NORVIC**  
Regd.

**CRÊPE BINDERS**  
are a selling line  
you can't neglect



Ideal for wherever support and elasticity are required

**ESPECIALLY  
IN  
MATERNITY**

In 6, 8 and 11 inch widths.

*Sole Manufacturers:*

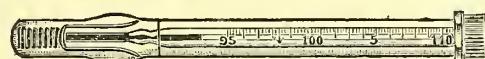
**Grout & Co., Ltd.**  
GREAT YARMOUTH.

**A. C. COSSOR & SON**

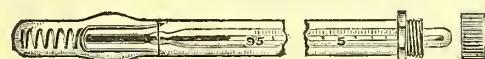
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**Clinical Thermometers**



**PATENT**



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The Thermometer is sterilised each time it is placed in the case, and the markings on the tube are not defaced. Any 4" clinical will fit the case.

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Mean Greater Turnover for You—and Absolute Satisfaction for Your Customers.

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are now sold in glass tubes, encased in smart, clean-looking "safety-first" cartons. They are retailed at 2d. each, made in 25 popular shades and colours, and are extensively advertised in the right publications.

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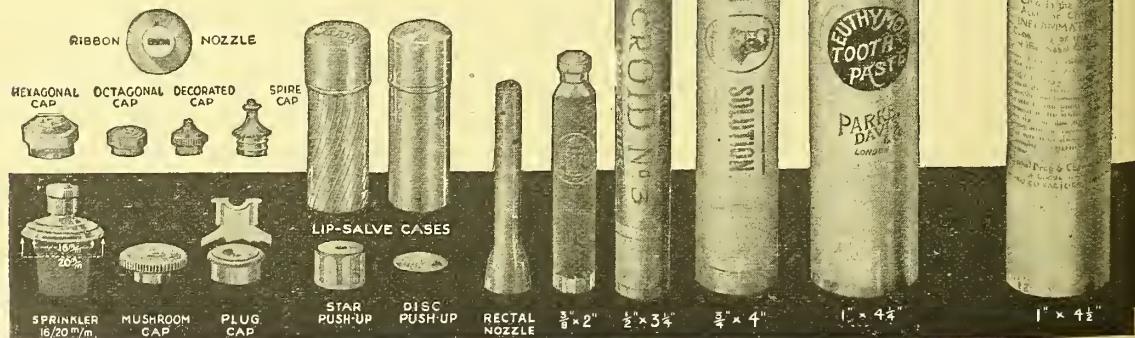
292 UPPER STREET, ISLINGTON, N.1.

# Venesta Collapsible Tubes

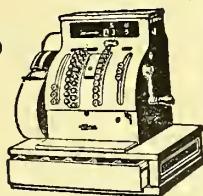
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Made in Pure Tin, Lead, or Lead coated with Tin, Plain or Enamelled, and printed with designs to suit customers' own requirements

Manufactured by  
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We often take back used Cash Registers when customers are installing larger or more up-to-date machines. These National Cash Registers

### Thoroughly Overhauled and Rebuilt

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Cellophane protects, beautifies and adds the quality touch.

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*for all  
Household Dyeing*

**"CAPSOL"**  
BRITISH PATENT  
DYES



AS EASY AS WINKING

**CAPSOL DYES** for all materials

**"CAPSOL WONDER"** No Boiling  
Leaves lace insertion white

**"CAPSOL DIPPIT"** No Boiling  
The ONLY cold water dye from start to finish

**CAPSOL DYES** in every shade  
Time 10 seconds. No Boiling

Showcards &c. supplied.

Address all enquiries to Works.

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## GET YOUR SHARE OF THE "LUTON" PROFITS

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are attractively packed and can easily be used for artistic displays. May be had in dull or glossy series. Consistently advertised in the leading newspapers and periodicals of the country.

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Recognised as the finest cold water dye in the world for dyeing delicate and costly fabrics. A certain seller.

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The best hot water dyes for all materials, giving perfect results with the minimum of trouble. As with all Whitaker products they show a good profit.

Entirely British—British Enterprise—British Labour—British Capital.  
All Cases and Containers Free. Special Non-Inflammable Series supplied for Export.

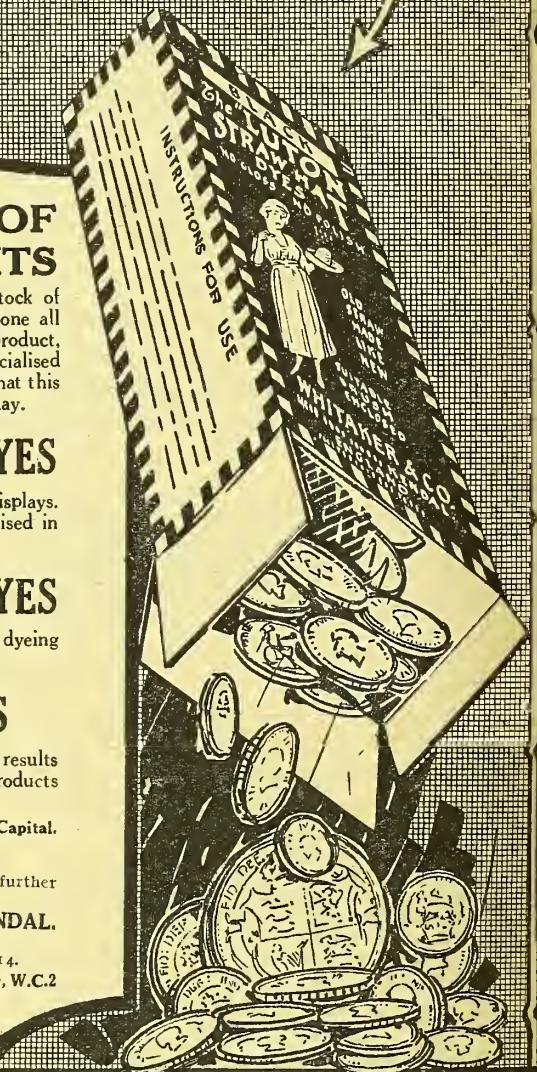
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*Dye Specialists to the Chemists' Trade.*

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ESTABLISHED 1878.



## The 'LUTON' STRAW HAT DYES

# THE CHEMIST AND DRUGGIST



## SUPPLEMENT

42 CANNON ST.  
LONDON E.C.4

AUGUST 16, 1924

*This Supplement is inserted in every copy of The Chemist & Druggist.*

## THE SUPPLY OF SUPPLEMENTS.

The clerical work in connection with the posting of spare copies of the Coloured Supplement week by week has increased to such an extent that we have been compelled to reorganise our system of distribution. Our readers will please note, therefore, that, in future, instructions can be accepted for not more than six successive issues of the Supplement at a time, and that in every case

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FROM 15-20 GOOD-CLASS RETAIL BUSINESSES, in prosperous localities; must bear strictest investigations; turnover not less than £5,000 p.a.

Vendor could acquire an interest in a Company which will control the multiple shops.

Send fullest information in confidence to this office.

MANUFACTURING CHEMIST.—An active or sleeping Partner to invest £2,000 in Company manufacturing well-tried Vermin Exterminator. Full particulars on application to this Office.

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4.—LONDON, S.W.—A conveniently fitted Drug Stores, in busy thoroughfare; held on lease; good scope for development. Full particulars on application to this Office. (133)

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6.—CUMBERLAND.—Well fitted, unopposed Pharmacy; returns, £30 per week; 1½ years' lease, renewable; rent, £25 p.a.; Kodak, N.H.I.; price, £550 all at. (103)

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10.—MIDLANDS.—Well-stocked General Retail, Dispensing and Photographic, in small country town; returns, £37 per week; rent, £40 p.a.; price £1,535, or offer. (108)

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1.—SOUTH MIDLANDS.—Sound Light Cash Retail, in large market town; returns average over £1,200; low rent; good house; heavily stocked; same hands 14 years; price £850; recommended.

2.—LANCS.—Light Family Retail, with N.H.I.; main road position; unopposed; returns exceed £1,500; good house and shop; rent, £50; on lease; price £1,250; strongly recommended.

3.—SOUTH COAST.—Good-class Retail and Dispensing, in main road position; returns, about £25 weekly; good profits; rent, £52 clear; long lease; lock-up shop, well stocked; price £800.

4.—LONDON, W.—Good medium-class Cash Retail, with Kodak Agency; returns, £2,000, under manager; gross profit, 40 per cent.; prominent position; valuable lease; price £1,250, or offer.

5.—LONDON, S.W.—Profitable Cash Drug Stores, in main road; nicely fitted and well stocked; returns, £1,100; scope for N.H.I. and Photo; house attached; price £600, or offer.

## BUSINESSES WANTED.

Messrs. Berdoe & Fish are in immediate want of sound businesses at prices ranging from £700 to £4,000, and cordially invite correspondence. We have a large number of genuine cash buyers waiting and are able to negotiate sales quickly and with the utmost privacy.

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£15 to £16 PER WEEK.—Densely-populated district Branch; personal attention would at once greatly increase; price £475.

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**BUSINESSES FOR DISPOSAL.**

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**BLACKPOOL.**—Business for disposal; established nearly 30 years; present owner over four years; large shop and house; steady winter trade; large increase in season; good Photographic trade and opening for Optics; large stock, and fittings in splendid condition; price £4,000, including property; returns last four years average over £2,000; principals only. 18/19, Office of this Paper.

**BRISTOL.**—Main position; rare opportunity; Chemist's Business; good Photographic connection; large N.H.I.; good scope for increased takings; fine corner premises; living accommodation; electric light; bargain, £4,225, including premises, stock, goodwill and fittings. Details, Bolitho, 39 Park Street, Bristol.

**LONDON.**—Busy East End; main road; near City; good house and back; rent £40; lease, remainder 4½ years; freehold could be arranged reasonable; no N.H.I.; average takings £27 weekly; well stocked; established 17 years; age and health cause of disposal; vacant possession of house and business on completion; £650 or near offer. "Senex," 15/40, Office of this Paper.

**LONDON, N.W.**—Main road; Cash Dispensing and Photographic; good living accommodation or suitable let-off; long lease; returns last year £2,000; genuine opportunity; plenty of scope for increase and opening for Optics; price, nearest offer £1,200. "Primus," 23/34, Office of this Paper.

**MANCHESTER.**—Old-established Retail; returns £17 weekly; hours 9 a.m. to 6 p.m., Saturdays close at 1 p.m.; turnover could easily be increased; giving up retail, confining to wholesale only; excellent fixtures; rent £42; living accommodation; vacant possession; offers invited. Apply "F. E. B.," 13/35, Office of this Paper.

**SOUTH COAST.**—Cash Retail Business in good position on main road; Photography, N.H.I.; shop nicely fitted and well stocked; returns increasing; rent £50; lease, five-room house; price £650. "Salol," 23/26, Office of this Paper.

**SOUTH COAST Health Resort.**—Small Lock-up Pharmacy and Dispensary; recently established and doing well under unregistered; Prescribing the main feature; needs Chemist; mixed middle-class profitable family trade; steadily increasing with no end scope; good saleable stock; electric; 14 years' lease (small flat near); £700. 23/17, Office of this Paper.

**S.W.**—Good-class Cash Retail for Sale; on main road in busy thoroughfare; same hands 6 years; nicely fitted and stocked; returns over £1,000 per annum, increasing; convenient house attached; side and back entrance; moderate inclusive rent and rates; unusually profitable lines; thoroughly genuine; owner relinquishing Retail. "Bona-fide," 24/8, Office of this Paper.

**WEST RIDING.**—Cash trade; Kodak, Rexall; large lock-up; cellar, covered yard; option of rented house; population 40,000; established 3½ years; takings £1,000, £1,400, £1,600, £880 (b); efficient apprentice; renewable lease; £65 inclusive; fixtures £250, goodwill £150; stock at valuation, about £550; part can remain; seller migrating to London. 21/5, Office of this Paper.

**WESTERN COUNTY.**—Immediate possession. Good-class Light Retail and Dispensing Business; turnover, between £2,000 and £3,000; well established; good house, with every convenience; large well-fitted shop; all cash trade, with good side lines; lease 14 years; stock and fittings £950, goodwill £400. Particulars to applicants with references only. Apply, 22/22, Office of this Paper.

**CHEMIST.** opening large Pharmacy, wishes to sell his present compact little Business; turnover, about £1,100 per year; profits exceptionally high; low expenses; good working stock, and handsomely fitted; good house at fair rent; new lease granted; prompt purchaser with ready cash will get a bargain. 22/20, Office of this Paper.

**CHEMIST'S** Business in busy thoroughfare in Wolverhampton; very central in densely-populated industrial area; lock-up shop with lease and low rental; stock in tip-top condition; mostly new; splendid opportunity; suit either qualified or unqualified; price, value of stock about £450. 23/16, Office of this Paper.

**FOR** disposal, high-class Dispensing Business through decease of late proprietor; returns £3,000 per annum; good main road position near London; good house, side entrance; 21 years' lease will be granted at low rental; vacant possession to suit purchaser; price £2,500; part can remain. "H. K." 23/35, Office of this Paper.

**FOR** Sale (Glamorganshire), a genuine, going Country Drug Store under unqualified youth few hours daily; a certain living and good investment for qualified man; growing district; now doing £25 weekly; could be doubled in few weeks with regular attendance; lock-up shop; best position; freehold; prefer to sell the whole lot, ground, shop, everything as it stands; immediate possession; purchaser could extend same, also build house or bungalow behind or camp in season. "Confidential," 51/541, Office of this Paper.

**GOOD-CLASS** Light Retail and Dispensing, with Kodak Agency; present turnover, about £30 weekly, increasing; very profitable; first-class growing locality; coast; easy distance London; modern pharmacy, lock-up; well stocked; long lease; sound reasons for disposal; for quick sale, will accept £900 cash. Address, "Ormesby," 88, Riverway, Palmers Green, N.13.

**OLD-ESTABLISHED** Herbalist and Chemist Business, Western suburbs, for Sale; suitable for lady and gentleman; good Family trade; double-fronted shop, house and small garden; £4-500 net profit a year should easily be made; long lease; low rent; principals with approximately £1,500 cash upwards would be entertained. Messrs. Tabernacle & Son, 15 Hart Street, Bloomsbury, W.C.1.

**£50** CASH secures immediate possession of House and Shop in busy thoroughfare of Hull; shop fitted as Chemist's, with bottles, jars, window cases, drawers, counters, some drugs; electric light and gas; established 100 years; ready for Chemist's Business; only needs cleaning; remaining £50 can be paid to suit buyer's convenience; splendid chance for energetic man with small capital to obtain own business. Spencer, 11 Junction Lane, Sutton Oak, St. Helens.

**BUSINESSES WANTED.**

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

**BUSINESS** (not working-class) desired in London or Liverpool districts; Drug Store or Chemist's with scope for increase in good locality; one with favourable lease preferred and living accommodation; cash available £450, and balance (if any) by instalments. Replies, in confidence, to 21/21, Office of this Paper.

**PHARMACEUTICAL** Chemist wishes to purchase good-class Business; premises also will be entertained. Replies, in strict confidence, 16/26, Office of this Paper.

**TO** Chemist contemplating retiring.—Freemason's widow wishes to exchange her house, Kensington, for Chemistry Business suitable for her son; house contains 16 rooms, two baths, geysers, electric light; possession of entirely self-contained ground floor, garden; let off £203 per annum; lease 50 years, £15; modern drainage; redecorated; £1,400, lowest value. Appointment only to view, "N." 43a Sinclair Road, W.14.

**FOR SALE.**

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**FOR** Sale, three 10-gallon Butchers' Developing Tanks with racks; 1 Kodak Amateur Printer; 1 Ensign Aldis Enlarger, focussing model; 1 Turbine Print Washer; £20, or would separate. Flint, Chemist, Newport, Mon.

**DON** Filling Machine, by Roberts, for ointments, creams, waxes, etc., cost £20; also Moulds for Heelstick, beeswax. 19/29, Office of this Paper.

**APPRENTICE.**

**VACANCY** for an Apprentice in West-End Pharmacy; thorough training. P.C.B. 87/18, Office of this Paper.

## AGENCIES.

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**A** USTRALIA—NEW ZEALAND.—A well-known Manufacturers' House in Sydney, with connections in the entire trade throughout the Commonwealth and New Zealand, is open to accept first-class Sole Agencies in Patent Medicines, Chemists' Sundries, Toilet and Fancy Goods; highest London references. Write "Z. B. A.," 51/537, Office of this Paper.

**G**ERMANY.—In accordance with a new law, dated July 6, the importation of English Patent Medicines into Germany is again permitted. During pre-war days we transacted a large trade with these medicines in the larger towns and seaside resorts, and are now resolved to take up this business again. There is a good demand here, and makers of these goods who are interested in the sale of Patent Medicines in Germany are requested to write to us. Letters 18/37, Office of this Paper.

**N**EW ZEALAND.—The head of an established firm of Manufacturers' Representatives, with own travelling staff, handling Druggists' Sundries, Proprietary Articles, etc., is at present in England with the object of obtaining two or three additional Agencies for New Zealand; highest credentials; correspondence invited from houses of standing only. Apply P.C.B. 88/36, Office of this Paper.

**A** FIRM of Agents, with connection in Northumberland and Durham, are open for additional Agencies for Specialities in Sundries, Toilets (not soaps), Packed Goods, etc.; commission basis. Apply 18/27, Office of this Paper.

**A** GENTS REQUIRED.—Proprietors of absolutely new product for Renovating and Dyeing Furs at Home require Travellers in London and suburbs; must have sound connections Chemists and Druggists; liberal commission basis. Write, stating territory covered, 21/18, Office of this Paper.

**L**ARGE well-established Wholesale Firm, with first-class connections with Chemists and Wholesalers, having representatives covering Central and South America and the Mediterranean, is prepared to entertain proposals on reasonable terms for a limited number of Agencies. Apply "J. M. T.," 51/542, Office of this Paper.

**L** EADING FRENCH PERFUMERS  
A RE anxious to get into touch with a firm of standing who will act as their Agents in the United Kingdom. These Perfumes have a large sale in France and America. The goods are branded. Apply, with full particulars as to sales organisation and any other agencies held, to 14/31, Office of this Paper.

## SITUATIONS OPEN.

## [HOME.]

## RETAIL.

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**B**ACUP.—Improver or Junior wanted immediately; Photographic experience necessary; state salary required. Mead, Chemist, Bacup.

**B**AATH.—Two Assistants required in Dispensing business, Junior for early September and Senior (who must have had good experience) for September 29. Will applicants please state all particulars (with salary required) in first letter to "Pharmacist," c/o Sayers, Northlands, Selsey, Sussex.

**B**IRMINGHAM.—Manager for branch; must have had good all-round experience with Photography; young and enterprising; about mid-September. Please give all usual particulars and salary, with photo if possible, to 20/31, Office of this Paper.

**B**IRMINGHAM (near).—Qualified Manager, married, for quick Cash Light Retail business; has been well managed for several years; lucrative permanency to the right man, who must be ready to commence duty on September 1. "W. B.," 20/7, Office of this Paper.

**B**OLTON.—Qualified Chemist at once for light Retail and N.H.I. State salary required (outdoors); must be moderate; permanency if suitable. Full particulars in first letter to 23/5, Office of this Paper.

**B**OURNEMOUTH.—A male Junior Assistant wanted for two weeks as a Holiday Assistant, from August 20 or 21. State age, experience, and salary required; easy berth; no N.H.I. work. Cumber. Chemist, Winton, Bournemouth.

**C**LIFFTON, BRISTOL.—Qualified man wanted, September 1, with good-class Counter, Dispensing and Photographic experience. Kindly give full details of age and experience, and state salary required (outdoors). Mr. Matthews, Pharmaceutical Chemist, Clifton, Bristol.

**I**PSWICH.—Junior (male), outdoors. State age, height, when disengaged, references, and salary required. Time for attending classes could be arranged. Applications not answered in four days respectfully declined. G. N. Edwards, Chemist, St. Nicholas Street, Ipswich.

**L**EEDS.—Senior Assistant wanted for a good-class Dispensing and Photographic business. Give full particulars in first letter, and state salary required and when disengaged. No photos or stamped envelopes. Apply to M. E. Murray, M.P.S., 221 Woodhouse Lane, Leeds.

**L**ONDON.—Smart, young Unqualified Assistant wanted; one just out of good apprenticeship will do if willing to take an interest in Salesmanship, Photography and Window-dressing; good references essential. Apply, with full particulars, height, experience and salary (outdoors), "Active," 22/37, Office of this Paper.

**L**ONDON, E.—Assistant, young, gentleman, qualified; N.H.I. and quick Counter trade. Full particulars first letter, age, experience, references, etc. Apply Massinghams, Ltd., Chemists, 34c Green Street, E.2.

**L**ONDON, E., SUBURB.—Unqualified Manager, lady or gentleman, for small Drug Pharmacy; neglected now; scope for business increase. Apply, stating usual particulars, references, salary, etc., to 24/290, Office of this Paper.

**L**ONDON, N.—Qualified Manager wanted for middle-class branch business; permanent situation for suitable man. Apply with full particulars of experience, age, height, salary required, and when at liberty. Also Assistant, lady or gent. Apply, with full particulars, to Oliver & Co., 487 High Road, Tottenham, N.17.

**L**ONDON, S.E.—Assistant or Junior, outdoors, for Photographic and Dispensing business. Apply, with full particulars, photo, and stating salary required, to A. Goldthorpe, Chemist, 113 Plumstead High Street, S.E.18.

**L**ONDON, S.E.—Required, a Fully-qualified Lady Chemist, with good all-round experience; an excellent opening. Apply with fullest details, to 22/34, Office of this Paper.

**L**ONDON SUBURB.—Qualified Manager required for middle-class Retail, Kodak and N.H.I.; good Window-dresser; good prospects to business increase. Apply, stating experience, references, salary, etc., to 24/29, Office of this Paper.

**L**ONDON, W.—Competent Junior Assistant (male), accustomed to good-class business. Please state age, height, experience, references, and salary required (outdoors). W. A. Weston, 8 Sandringham Parade, Ealing.

**M**AIDA VALE.—Reliable Junior Assistant; unqualified; outdoors; September 1; must be well up in good-class Retail and Dispensing. John Keall, 241 Elgin Avenue, Maida Vale, W.9.

**M**ANCHESTER.—Locum wanted, from September 6 until September 21; qualified. Please apply, by letter, to "M.P.S.," 4 Grange Terrace, Wilmslow Road, Rusholme, Manchester.

**M**IDLANDS.—Smart, energetic, qualified Manager required, single, not under 30 years of age; liberal interest in the profits offered to suitable applicant. "Mid," 20/70, Office of this Paper.

**R**HYL.—Wanted, Junior Assistant; good address and highest references indispensable. State salary required and full particulars to P. J. Ashfield, Chemist, Rhyl.

P A R I S H O F S T . P A N C R A S .  
G U A R D I A N S O F T H E P O O R .

PLICATIONS are invited for the post of Dispenser (male) at the Highgate Hospital, Dartmouth Park Hill, N.19. Salary at the rate of £300 per annum, rising by £10 annually to £350 per annum, together with £25 per annum as Radio-ther and £10 per annum for dispensing for the resident staff. Candidates must be duly Registered Pharmacists under the Pharmacy Acts, Great Britain, and have a knowledge of Radio-ther. canvassing the Guardians is prohibited, and will disqualify a candidate. Applications to be made upon forms to be obtained at my office, as below, which must be returned to me not later than instant.

B. CHAPMAN, Clerk to the Guardians.  
21 Hall, Pancras Road, London, N.W.1.

11th August, 1924.

CROPSHIRE.—Required immediately, Qualified Assistant for Country Business; middle-aged or elderly would suit; one agricultural experience preferred, but must be active, able, obliging and reliable; permanency; comfortable berth; progressive salary to one suitable. Give full details in first as to experience, married or single, age, salary required and two recent references; photo if possible. 23/9, Office of Paper.

EFFIELD.—Wanted, qualified Junior, mixed trade with N.H.I., capable of taking charge; outdoors; easy hours; no day duty. Write, stating age, height, experience, salary required, and when at liberty. Apply Hewitt, Chemist, Sheffield.

KFIELD.—A Junior Assistant for a good-class country business; duties 48 hours weekly; Dispensing, Counter and photographic; no Sunday duty; outdoor. Applicants must give references, state experience, and salary asked; send photo. Uckfield.

SISTANT wanted, age about 25; must be good Dispenser and accustomed to high-class trade. Apply, by letter only first instance, to Alfred Allchin & Co., 9 Royal Parade, Evers Green, N.W.11. Applications unanswered five days met with thanks.

SISTANT, unqualified, required immediately. Please give full particulars of experience, salary expected, copies of references, etc. A. & N. Catto, Ltd., 49 Cranbrook Road, Ilford.

EMIST (qualified) wanted early in September for light Retail and Dispensing, N.H.I.; within easy distance of town; good Prescriber, Window-dresser and knowledge of Photography. Particulars of age, experience, salary, etc., to 1, Office of this Paper.

PROVER wanted immediately, with knowledge of Photographic work, D. and P., etc.; Counter, Dispensing; a willing worker. Apply Blades & Son, Chemists, Leek.

NIOR or Improver (male); good appearance; outdoors; short hours. State salary, references, etc., Shuker & Reed, Launceston.

NIOR or Improver required at once; outdoors. Please send full particulars and salary required to Allen & Neale, Chemists, King's Lynn.

NIOR Assistant wanted at once for good-class Dispensing business, with knowledge of Photographic trade and window-dressing; outdoors. Please state experience, salary required, and enclose photo if possible. S. P. Sayers, 7 Brent Street, Hendon, N.W.4.

ADY, unqualified, required to assist at Counter and general work of shop; W. district; state age, height, salary required. 22/15, Office of this Paper.

ADY Dispensers required for Balham, Church End, and Hammersmith districts; Counter experience an advantage. Apply by letter, stating full particulars, to 51/543, Office of Paper.

OCUM, qualified, wanted September 9 to September 22 inclusive; colliery district; must be thoroughly reliable. Apply, giving full particulars, to "Glamorgan," 20/4, Office of this Paper.

OCUM, qualified, for two weeks commencing August 29 or September 5; good experience. Apply, with references and salary required, to C. F. Pain, Ltd., Chemists, Chorleywood.

OCUM wanted, qualified, chiefly N.H.I. Dispensing, September 15 to 27 inclusive, or any fortnight in September, salary, stating terms, etc., Desmonds' Drug Stores, 106 Albert Road, N. Woolwich, E.16.

MANGER, qualified, required for new department; must be an obliging and tactful Salesman. Apply, stating age and full particulars of experience and salary required, to the Sittingbourne Co-operative Society, Ltd., Sittingbourne, Kent.

PERMANENCY.—At once, qualified Chemist; married or single; house ready in case of former; good salary. Apply Jubb & Co., 7 Chariot Street, Hull.

QUALIFIED Assistant wanted, Tyneside branch; N.H.I. and busy Counter trade; must be good Window-dresser. State age, salary required, together with references and photo, which will be returned. Apply Mason & Co., Ltd., King Street, South Shields.

QUALIFIED Assistant wanted for few months, possible permanency; young; single; good worker. Full particulars to Werge, Grimsby Road, Grimsby.

QUALIFIED Branch Manager wanted, able to speak French; young and energetic; knowledge of Photographic trade; good Window-dresser. Apply, stating experience and salary required, to H. Lester, 64 Gt. Titchfield Street, W.1.

QUALIFIED Branch Manager, with Photographic and Optical experience, required early in September; permanent situation for suitable man. Applicants please state full particulars, with references, to "Pharmacist," 86 Victor Street, Grimsby.

QUALIFIED Assistant (male) required about end of August; indoors; easy, comfortable permanency; small country town; no Sunday duty; Photography, N.H.I.; state salary and experience. Apply "Rhei," Loftus & Saltmer, Ltd., Hull.

QUALIFIED; young, gentlemanly Assistant required for West-End Dispensing and Counter Business; must be energetic, capable and have similar type of experience; immediate and permanent position to suitable man. Full particulars in first letter, salary required, to 50/526, Office of this Paper.

QUALIFIED Assistant, age about 27-30, wanted shortly for branch business; good appearance and an efficient Counter-man essential. Please state full particulars and send photo. Lester, Chemist, Canterbury.

QUALIFIED lady Assistant; N.H.I. and General Counter trade; colliery village. Hern, Chemist, Goldthorpe, near Rotherham.

QUALIFIED; London; August 16. Reply immediately, V. Latty, Chemist, Bristol.

QUALIFIED Manager required for Business in good-class London suburb; must have had good all-round experience and used to brisk business; good prospects to the right man. Apply 3 Ridgmount Street, Tottenham Court Road, W.C.1.

TALL, gentlemanly Junior Assistant required for West-End business, to commence September 1. Photographs returned immediately. Applications not answered in six days respectfully declined. Fullest particulars to "X. Y. Z." 21/23, Office of this Paper.

WANTED, a qualified lady or gent. for small branch shop in a mining village. Apply, stating age, salary required, etc., to 18/29, Office of this Paper.

WANTED, immediately, smart Junior Assistant for quick Counter trade and N.H.I. Dispensing; London suburb. Apply, giving age, height, salary and references (photo if possible), 21/14, Office of this Paper.

WANTED, a lady Assistant (Minor qualification); quick, accurate Dispenser. Apply, stating salary required, W. Gowen Cross & Son, Mardol, Shrewsbury.

WANTED, early in September, qualified Assistant, also Locum, qualified, August 23 to September 6. State age, salary required, and give reference to last situation to Walshaw, 18 Grasmere Road, Huddersfield.

WANTED, unqualified Assistant, male, for one month, commencing August 25; outdoors; no night or Sunday duty. Particulars as to salary, experience, etc., to Francis & Groves, 129 High Street, Guildford. Applications not answered in three days respectfully declined.

WANTED, at once or latest September 1, unqualified gentleman Assistant; quick and accurate Dispenser; experienced Window-dresser; good references essential; please give full particulars and salary required; if possible enclose photograph, to be returned; applicants must be willing to be helpful; interview by appointment only. A. McKenzie, 192 Broadway, Bexley Heath.

## PHOTOGRAPHS, TESTIMONIALS, &amp;c.

When answering advertisements in this section applicants are strongly advised not to send (unless specially requested) ORIGINAL TESTIMONIALS or VALUABLE PHOTOGRAPHS. As can be readily understood, when an advertiser receives from 60 to 100 replies the task of returning photographs, testimonials, &c., is one of some difficulty.

**WANTED**, at once, unqualified Assistant; Counter, Dispensing, knowledge of Photography; about 26. Apply, giving full particulars and salary required, to 30 Broad Street, Teddington.

**WANTED**, at once, Junior (male) with good references for four weeks, accustomed to good-class Dispensing, Retail and Photographic business. Apply, stating age and salary required (outdoor), to Shilcock & Sons, 122 High Street, Bromley, Kent.

**£3 5s.** (outdoors).—Qualified for small branch near St. Helens; suit gentleman under 60 requiring permanency; easy berth; bachelor or widower preferred. Executrix of W. J. Gardam, Chemist, Sutton Oak, St. Helens.

**£180.**—LADY, Minor, experienced Retail, required early September; permanent post; give full details first letter; London. 19/34, Office of this Paper.

## WHOLESALE.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

**EASTERN** Counties, Midlands and Ireland.—Excellent side-line of merit; 20 per cent. commission; proved Dry Cleaner; sell 3d. and 6d.; liberal bonus balloon scheme; fine opportunity for first-class Salesman with extensive personal connection. 22/31, Office of this Paper.

**MANCHESTER** House require young man, with experience, compiling Catalogues, Circulars, etc.; capable of arranging matter and illustrations in original up-to-date style; preference if knowledge of Wholesale Toilet and Fancy Goods—brushes, perfumery, etc. Replies only considered giving full particulars of previous experience, age, salary required and references. 22/38, Office of this Paper.

**SOUTH WALES**.—Keen Salesman, already handling non-combative lines, with live connection amongst Chemists in South Wales, required to introduce new Proprietary Article which will be advertised; commission basis; exceptional opening for man of right ability in pushing an article of undoubted medical value. Applications, giving full particulars, will be treated in strictest confidence. Apply, by letter, Ki-uma, Ltd., Bath.

**CLERK** (male or female) wanted by Wholesale Patent Medicine and Sundry House; must be capable of receiving orders over the telephone. Write, stating age, experience, and salary required, P.C.B. 88/37, Office of this Paper.

**MANUFACTURING** Chemists; established nearly a century; extending sales organisation by addition Druggist Sundries, Soaps, Packed Goods, etc., require live Representatives with good connections; districts open: Scotland, Ireland, North England, Midlands, Wales. Reply, giving full particulars, to 23/40, Office of this Paper.

**MANUFACTURERS** require Representatives with sound connection (London and provinces) to sell Proprietary article of exceptional merit; good advertising; liberal commission. "S. B.," c/o Ward & Pascoe, 8 Southampton Row, London, W.C.1.

**PERFUMERY** and Packed Goods House requires Representation in following territories; only live Salesmen already representing one non-competing line need reply; terms, salary and commission: London and South-East Coast, Wales and West Country, Ireland. 51/539, Office of this Paper.

**REPRESENTATIVE** required by an old-established Sundries House; one with a good connection amongst Chemists and Hairdressers in Scotland and Yorkshire. Send full particulars to P.C.B., 87/15, Office of this Paper.

**T**HE services of a young man, under 30, are required by a firm of London Wholesalers Druggists to represent them amongst Merchants and Shippers generally in the City; must know the Export Trade well and possess all the attributes of a traveller. State experience fully and remuneration expected to 51/538, Office of this Paper.

**T**OILET Sundries and Perfumery.—Established House, shortly rearranging ground with view to extension, will require additional Representative; preference if sound, live connection either in Midlands, Wales, Lancashire, Yorks, or North of England, and able to drive car if required. State fully, in strict confidence, nature and length of previous engagements, reasons for termination, age, salary (including commission), references. 22/380, Office of this Paper.

**T**RAVELLER, calling Sundries Houses, able influence orders. Imported Bottles on commission; good business assured to capable man. Particulars "Y. Z." (P.C.B. 88/9), Office of this Paper.

## SITUATIONS WANTED.

## RETAIL.

## [HOME.]

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

**A.A.A.**—CAPABLE, unqualified, 29, seeks permanency; London and North; all-round experience; excellent references; Manchester or district preferred, but not essential. 23/33, Office of this Paper.

**A** KEEN, energetic, qualified Chemist, many years' good all-round experience; late own proprietor; married; free early September; locum or permanent; London suburb preferred; residing West of England. "Optics," 22/19, Office of this Paper.

**A** SUCCESSFUL Manager is considering making a change owing to lack of housing accommodation (in present position three years). If you are requiring a Manager who is keen and progressive, a tactful and courteous Salesman, and one who takes a pride in organising and building up a business, correspondence would be welcomed by "Progressive," 22/11, Office of this Paper.

**A** DVERTISER, a young qualified Chemist (30) contemplating a change in the near future (about October), requires responsible post with a view to succession or Partnership; a business man and a worker, Window-dresser and Ticket Writer; able to sell and make a window do likewise; excellent references; living accommodation desired, but not essential. "Progress," 21/1, Office of this Paper.

**A** DVERTISER, age 35, experienced all branches Retail Pharmacy. Counter, Dispensing, Photographic, desires position early September; unregistered; Midlands preferred. "Xylo," 22/21, Office of this Paper.

**A** LL-ROUND man, 35, not afraid of work, used to brisk Counter trade, up-to-date methods and Dressing Windows; varied experience; would manage Drug Stores; held similar position; 9 years last two situations; seeks berth where initiative and enterprise will be appreciated; London or suburbs. Replies to 24/5, Office of this Paper.

**A** S Locum; 35; thoroughly experienced; excellent references; London district; disengaged September 8. "Chemicus," 24 Mead Plat, Willesden, N.W.

**A** SSISTANT unqualified, age 23, good all-round experience; seeks position; North London preferred; terms moderate. Mr. L. Scott, 35 Devonshire Street, London, N.1.

**A** SSISTANT; disengaged; good Dispensing and Counter experience; Photographic Salesman and Window-dresser. Shields 63 Dante Road, Kennington.

**A** SSISTANT (Part I Minor) seeks West-End post with reasonable hours, because of Part II study; highest references. H. L. J., 104 Clapham Road, S.W.9.

**A** SSISTANT or Dispenser; about 14 years' experience in Dispensing, Counter, Prescribing, etc.; abstainer. "Associate," 16 Brixton Road, S.W.9.

**A**SSISTANT, with previous experience of managing Wireless Department, thorough knowledge of Photography and with excellent references, requires post; age 24. Apply 23/8, Office of this Paper.

**B**OURNEMOUTH.—Smart girl, 15, desires post as Apprentice; passed Preliminary; time for stdy. Savage, 12 Pinecliffe Avenue, Bonnacmenth.

**C**APABLE, unqualified Assistant; good all-round experience, both town and country; or Locum; disengaged August 25. 33 Hailsham Avenue, Streatham Hill.

**C**APABLE woman, with thorough all-round experience, wishes position of trust; undeniable references; used to West-End and taking charge; could manage, with cover. "Bee," 22/33, Office of this Paper.

**C**OMPETENT Assistant, unqualified, 30 years, requires comfortable berth for Counter and Dispensing; trustworthy; abstainer; excellent references; time to work out notice. Full particulars to T. Lloyd, c/o 52 Castle Street, Caerphilly, Glam.

**D**ISPENSER, lady, qualified, experienced, quick and methodical, requires post; excellent references. Apply 51/540, Office of this Paper.

**D**ISENGAGED 20th; energetic; smart; good address; thorough varied experience, all class and branches. "Chemicus," 162 Llyed Street, Greenheys, Manchester.

**J**UNIOR, 20; part-time or whole; good references; London preferred. "A. R. A." 10 Leighton Road, Enfield.

**L**ROWLAND & CO., Chemists, Wrexham, can recommend a good qualified Assistant; accurate Dispenser, smart Salesman, etc. Apply "D." 9 High Street, Wrexham.

**L**ADY Dispenser seeks post, Doctor, Chemist, or Institution; Hall Certificate; excellent testimonials; Birmingham preferred. Write 20/8, Office of this Paper.

**L**ADY, Minor, 24, desiring change, wants post with Chemist or Institution; references. "M.P.S." 50 Albion Road, Swiss Cottage, Hampstead, N.W.

**L**OCUM; disengaged until August 23; good experience and references; qualified; active, middle-aged. Walker, 66 Vancouver Read, Forest Hill, S.E.

**L**OCUM or Cover; qualified; highest references; open September 10 forward. Drackley, 35 Bensham Lane, Croydon.

**L**OCUM; disengaged August 20; best experience; town or country. "Pharmacist," 15 Hestercombe Avenue, Fulham, S.W.

**L**OCUM; qualified; only dates free, August 23 to 30, September 15 onwards; highest references. "Locum," c/o Miller & Son, 18 Norwich Road, Ipswich.

**M**ANAGER; qualified; age 36; married; temperate; 19 years' experience, Dispensing, Window-dressing, Photography; with view to succession or not. 281/17, Office of this Paper.

**M**ANAGER or Senior; qualified; 33; good-class Retail and Dispensing experience; Photography; good references; North preferred (not essential). Apply 23/27, Office of this Paper.

**M.P.S.**, 25, Scot, good all-round experience, desires position, preferably as Manager; disengaged September 15. Forbes, 71 York Road, Ilford, E.

**M.P.S.**, SMART, active; long managerial experience; good organiser; careful buyer; Photography; disengaged. "Pharmacist," 204 Stapleton Hall Road, N.4.

**M.P.S.** as Manager; S. Wales preferred; tall; energetic; good Window-dresser and Counterman; Photography; keen organiser; thorough experience. "Pharmacist," 70 Maleant Street, Cathays, Cardiff.

**M.P.S.** (SCOT), young, energetic, capable, thoroughly experienced, desires responsible position either as Manager or Dispenser; situation abroad would be considered; disengaged about end of September. 23/1, Office of this Paper.

**P**ART-TIME, evenings, male Pharmacist; East End shop or Institution; experienced; take charge. Write "Chemist," c/o 82, Upton Lane, E.

### NAMES AND ADDRESSES.

When sending advertisements for any of the sections in this Supplement, advertisers—as a guarantee of good faith and not necessarily for publication—should always give their names and addresses. It sometimes occurs that this rule is not followed and delay and disappointment ensues. Strict attention to this detail will be appreciated.

**P**HARMACIST, with 20 years' experience in all branches of high-class Dispensing and Retail business, requires Manager's post in London or near; used to control; living accommodation preferred. 23/2, Office of this Paper.

**P**HARMACIST-OPTICIAN requires post as Manager where Optics can be introduced or pushed; expert Optician and good business man; trustworthy. "X. Y. Z." 23/7, Office of this Paper.

**Q**UALIFIED, 28; managing; disengaged September 8; permanent or Locum; excellent references. H. Nethercott, 34 Rectory Grove, Clapham, S.W.4.

**Q**UALIFIED, 35; disengaged September 4; reference 3 years, 2 years; Locum or Manager; salary £5. "Pharmacist," 9 York Mansions, Earl's Court.

**Q**UALIFIED, 37, competent, reliable, with Store experience, as Manager, desires permanency; married. Venables, 84a High Street, Putney.

**Q**UALIFIED Locum at liberty for immediate engagement; wide experience in all branches. Lawrence, Market Place, Loftus, Yorks.

**Q**UALIFIED Locum, just disengaged; good references; varied experience; age 48; £5 5s. per week; now in London. "H. F." 24/4, Office of this Paper.

**R**EGISTERED; elderly; Super, Prescriber, etc. "D." 15 Seacombe Avenue, Wilbraham Estate, Fallowfield, Manchester.

**S**COTCHMAN desires situation end September; Junior or Improver; high-class experience, Dispensing, Counter and Photographic; West-End preferred. Apply 18/18, Office of this Paper.

**U**NQUALIFIED Chemist, good Dispenser, Counter, General business; Dental Certificate; Dental if required, but not necessary for engagement. "Cuprum," 21/11, Office of this Paper.

**U**NQUALIFIED Assistant; healthy, active, honest, sober and industrious; accurate Dispenser, Counterman, Photographer; age 60; thoroughly experienced; 4 years last situation. Scott, Littleham House, Douglas Avenue, Exmouth, S. Devon.

**U**NQUALIFIED, young, 4 years' good experience, height 6 ft., requires permanency; Locums considered; now in London, and can interview immediately; excellent references. "Kruschen," c/o Y.M.C.A., Forest Gate, London.

**Y**OUNG lady, M.P.S.; Locum or permanency; disengaged September 1; excellent and varied experience in Retail and Hospital. The Dispenser, South-Eastern Hospital, New Cross, S.E.

**Y**OUNG lady, 22, desires post in high-class business; 5 years' good Counter experience; Window-dresser; height 5 ft. 6 in. Write "S." 299 Iffley Road, Oxford.

**Y**OUNG Assistant, 22, speaking French fluently; English and Continental Dispensing; considerable experience with Optical, Analytical (urine analysis), and Photographic work; excellent references. Write H. L. Stevenson, 7 Abinger Road, London, W.4.

**Y**OUNG Scotsman, 20, desires post as Junior Assistant in London with firm offering sound Dispensing opportunities; good Dispensing, Counter and Photographic experience. McClymont, Craig Cottage, Kirkcowan, Wigtownshire.

**£7** WEEKLY.—Qualified Pharmacist and Optician; married; 47; London; management or responsible post for September. "F. S. M. C." 22/18, Office of this Paper.

## WHOLESALE.

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

**A** RETIRED Chemist, age 68, but fit, who finds time heavy on his hands, and who wishes to augment his income by a few pounds per week, seeks an appointment as Representative to call upon Chemists, on commission or small salary and travelling expenses, on the South Coast. Please address "H. E. S." 20/2, Office of this Paper.

**A**BILITY.—Sales, inside or outside, propaganda, field work; high record; London connection. "Chemist," 19/39, Office of this Paper.

**C**OMMERCIAL Traveller; age 25; single; 3 years' war service; educated Public School; has also good experience as Representative, Chemists' Sundries; willing to take any post. M.L. 3985/23, Office of this Paper.

**C**OMMERCIAL Traveller requires berth; at present engaged; good connection London and North of England; only good berth with reliable Wholesale House considered. "Qualified," 20/5, Office of this Paper.

**C**HEMIST is open to represent house of repute, Lancashire, Cheshire, North Wales; commission basis; own car. "Energy," 22/29, Office of this Paper.

**D**IRECT Representation required for all or part of the following territory: Yorks, Notts, Lincs, Derby, and Lancashire; now acting as Distributing Agent for two leading Proprietaries; 12 years' established connection; salary, expenses and commission; correspondence invited. 17/24, Office of this Paper.

**D**RUGGISTS' SUNDRIES.—Representative, 29; 7 years' war service; sound experience as representative; has good connection London and provinces; willing to take any post. M.L. 7843/21, Office of this Paper.

**E**X-RANKER Officer desires position at home or abroad; accustomed to Secretarial duties, care of Medical, Surgical and other Stores, Dispensing and Accounts; snit Doctor, Hospital or Sanatorium; good organiser, and thoroughly recommended for any position of trust and responsibility. M.L. 3841/21, Office of this Paper.

**K**OWN Representative, Midlands, resident on territory, fully experienced all branches Drug trade, prepared consider change; progressive house only. "Reliance," 19/31, Office of this Paper.

**L**ADY, Clerk-Typist (or Secretary), requires position with Manufacturing Chemist or Agents; 8 years' experience. P.C.B. 88/20, Office of this Paper.

**P**HARMACEUTICAL Chemist, B.Sc. (Liverpool), A.I.C., needs position in any branch of Pharmaceutical and Chemical work; 32; ex-officer (4 years' war service); 11 years' experience; highest references. 23/19, Office of this Paper.

**P**H.C., 23, desires permanent and progressive post with Wholesale firm; keen, energetic, and excellent knowledge French and Italian. 19/7, Office of this Paper.

**P**ILL and Tablet Making, Coating, etc.—Advertiser seeks engagement; 27 years' experience; capable of taking charge of department. 19/53, Office of this Paper.

**P**OSITION (responsible); many years' managerial experience in Drug Department; unique knowledge; Home and Export; Buying; excellent references. 20/1, Office of this Paper.

**R**EPRESENTATIVE, 28, good connection Eastern Counties, leading London house, Sundries and Drugs, previous 10 years' experience Retail Pharmacy, open for engagement. 22/13, Office of this Paper.

**R**ESEARCH or Plant Chemist, 24, B.Sc.; good knowledge French and German; had experience in Chemical Company. M.L. 26728, Office of this Paper.

Price lists, trade circulars, samples, and printed matter can in no case be forwarded, the Box numbers being intended exclusively for specific answers to particular advertisements. The Publisher reserves the right to open and refuse to forward any communications received which he may consider contrary to this rule.

## ALL DRUG CLERKS AND FOREMEN

should join at once

**The NATIONAL DRUG & CHEMICAL UNION**  
(incorporating the National Association of Chemists' Assistants)

**BENEFITS:** Trade Protection—Legal Aid—Unemployment Benefit—Free Use of Employment Bureau.  
Write for particulars:—ARTHUR J. GILLIAN, Gen. Sec.  
149 Newington Causeway, LONDON, S.E.1.

**S**OTSMAN, qualified Chemist, young, energetic, desires position as Representative for first-class firm; no previous experience, but keen; undertake responsibility; Scotland preferred; Manager of shop at present. 22/40, Office of this Paper.

**S**OUTH WALES GROUND.—Advertiser, sound connections, seeks Representation first-class house, Drugs and Packed Goods, Perfumery, or well-advertised Proprietary; part expenses and commission or commission only. 24/1, Office of this Paper.

**W**ORKS Chemist, B.Sc. Technology (Manchester), 26, single; French and German; 2 years' experience as Assistant to Pharmacists; willing to take any post. M.L. 5800/23, Office of this Paper.

## MISCELLANEOUS.

10s. for 60 words; 1s. for every additional 10 words or less.

**S**ECOND-HAND CHEMISTS' FITTINGS.—We have an exceptionally fine selection of these in all sizes; prices are right, and goods are in first-class condition; we shall be pleased to supply particulars and prices. Call or write, RUDDUCK & CO., 262 Old Street, London, E.C.2.

**C**HEMIST'S Fittings (second-hand).—Ranges of Drug Drawers, Shelving, All Glass Counters, Centre Cases, Window Fittings of all descriptions. D. MATTHEWS & SON, Chemist Fitters, 14/16, Manchester Street, Liverpool.

**C**OMPACT Optical Bench, 3 ft. 9 in., with automatic edger and diamond drill, new, 240 volt motor and under pulleys, £38. W. MASKEW, Stone House, Hertford.

**L**IMITED Companies formed not only for Chemists and Opticians, but for any trade. Established 1905. Books, seal, etc., are included in quotation. Advice free. A. B. SLACK, 15 Christ Church Avenue, West Didsbury, Manchester.

**U**SE of section of Laboratory required for experiments; Chemist's assistance in addition preferred. P.C.B. 89/2 Office of this Paper.

**£144.** —SET of complete mahogany Shop Fittings, 7 ft. hand-some Dispensing Screen, 7 ft. Wall Case, 12 ft. Counter with cases in front, plate-glass Counter Case, two nests of Counter Drawers, 12 ft. Drug Fitting, Perfume Case and Desk, all-glass Counter; can easily be adapted. PHILIP JOSEPHS & SONS, LTD., 93 Old Street, London, E.C.1.

## EXCHANGE COLUMN.

2d. per word: Minimum 2s.

## FOR DISPOSAL.

TRIAL CASE in good condition. Particulars from 21/19, Office of this Paper.

SHOW CASE, 6 ft. 9 in. by 5 ft. 6 in., and two nests Drawers from West-End Pharmacy. Marshall, Chemist, 93 Leadenhall Street, E.C.3.

## WANTED.

ADVICE re Manufacture of Malt Extract for Chemists. Apply 22/28, Office of this Paper.

PHARMACEUTICAL Books wanted; send priced list. Gower, Bookseller 41 Voltaire Road, Clapham.

MOOVIT CORN PENCILS, or cash wanted in exchange for Powerex. Spink, Chemist, Gateshead.

# Little lines & Big Profits

We all know there comes a point in everything when more profit can't be expected unless you are going to sell poor value for money, and that's nothing but bad business.

Here is a case where more profit can come to you without endangering the goodwill of your business. The Elfrida lines illustrated and the remainder of the series are as good as any on the market to-day, but the profit is better than the average.

It is not easy to choose between the innumerable toilet preparations that are offered to you, but when we say this series is up to standard you have our whole business reputation behind that assurance, and as for the profit—well, you can compare for yourself.

With all orders we send a good supply of showmatter and the window show is a particularly attractive one. The lines illustrated are moving very quickly indeed—wouldn't you like a share in this big business?

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5/3 doz.	5/- doz.	gross lots.
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8/- doz.	10/- doz.	18/6 doz.
2/6 size.	3/6 size.	5/- size.
20/- doz.	27/- doz.	36/- doz.
	7/6 size.	
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1/6 Jars.

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2/- Powder.

12/6 doz. 12/- doz. gross lots.



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